Ask your Jobber or write for Free Copies of our latest cumulative Index and "How to File" Folders

TRADE NAME	MODEL	FOLDER NO.
Airline	74WG-1509-A, 74WG-1510A	4717-1
Airline	74WG-2004A	4717-2
Andrea	CO-UI5	4717-3
Automatic	Tom Boy	4717-4
Bendix	847-B	4717-5
DeWald	A-514	4717-6
Dynavox	Swingmaster	4717-7
Emerson	514, 534 (Ch. 120007)	4717-8
Fada	P80	4717-9
Fada	P100	4717-10
General Television	4B5	4717-11
General Television	5B5G, 5B5Y	4717-12
Globe	552	4717-13
Knight	7B200	4717-14
Lafayette	MC12	4717-15
Lafayette	MC16	4717-16
Majestic	5AK711	4717-17
Majestic	7JK777R (Ch. 4708R)	4717-18
Meissner	2961 Series	4717-19
RCA	66X11 (Ch. RC-1046A), 66X12 (Ch. RC-1046), 66X13, 66X14, 66X15 (Ch. RC-1046B)	4717-20
Radiola	61-8, 61-9 (Ch. RC-1034)	4717-21
Regal	747	4717-22
Remler	5500, 5510 "Scottie Pup," 5520, 5530 "Scottie Junior"	4717-23
Silvertone	6016 (Ch. 132.820)	4717-24
Silvertone	7086 (Ch. 110.466), 7103 (Ch. 110.466-1)	4717-25
Sonora	RGMF-212, RGMF-230	4717-26
Sonora	WAU-243	4717-27
Temple	G-410	4717-28
Truetone	D-2619 (Fact. No. 2701)	4717-29
Truetone	D-2709 (Fact. No. 470)	4717-30
Utah	Record Changer 7000	4717-31
Zenith	Record Changer S-11680	4717-32

The PHOTOFACT Servicer

NOVEMBER 1, 1947 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ VOL. 3, No. 27

ROBERT M. ELLIS, *Editor*

THE BENDIX FACTO-METER

One of the most interesting sets that has passed through our hands recently, and one that we have had a lot of fun playing with, is the new Bendix 847S Field Strength Test Receiver, or "Facto-Meter." Briefly, it is a portable AM-FM receiver having a two range field strength meter of arbitrary calibration. The set, of the AC type, may be used with either a built-in rod antenna, or with an external dipole as desired.

The Facto-Meter is designed to be a tool for selling FM and permits a direct comparison between the two methods of transmission in any location. In many places, particularly in outlying districts, an external dipole or a dipole and reflector may be necessary for good reception. There is no guessing on that point, when a preliminary test is made on the Facto-Meter. Its meter will tell you just what is required for proper results.

In many locations a built-in antenna may give good results in some parts of the house, and poor results in others, perhaps only a few feet away. Because of the short wave lengths used in FM the performance in this respect is quite different from what we have learned to expect with AM reception. The convenient portability of the Facto-Meter will enable the user to predetermine the best location for a set; and eliminates the possibility of having to make trial locations with a heavy console.

It is obvious that a portable receiver with a small sized speaker cannot do full justice to FM tone quality. The Facto-Meter has a tapped audio output, so that the signal from this set can be fed into the phonograph input jack of any console; and by using such a connection a dramatic demonstration and comparison between FM and AM audio quality and noise level performance can be had in any location.

Because of the shortage created by the war, radio receivers have been selling themselves. That time is fast ending. It is the opinion of experienced merchandisers that in the future a buyers' market will prevail; competition will be tough; and a selling job will be necessary to move radio receivers, especially the higher priced models. The Facto-Meter is a valuable aid in creating a desire for a better set.

A PHOTOFACT Folder on the Facto-Meter will appear in PHOTOFACT Folder Set No. 28—look for it.

★ ★

WE PROTEST TO "LIFE"

Our telegram dated September 8, said:
"Wilson Hicks, Executive Editor
Life Magazine
Time & Life Building
9 Rockefeller Plaza
New York, New York

"In utter dumbfoundment at Life's attack on a legitimate and honest profession, I wish to protest against the defamatory insinuation appearing on Page 96 of your September 8 issue, 'Radio repairmen who have relied on the customer's ignorance of electronics to foist huge repair bills on him.' Without passing on the merits of the Brenta invention the average radio technician, really a swell guy, would be happy to be relieved of the low profit and generally thankless job of repairing small table model receivers, so he could concentrate on large combinations, FM and television receivers, and industrial electronic devices. An impartial investigation would disclose that radio servicing is the lowest paid of all professions considering the required technical skill and necessary expensive test equipment.

Signed: HOWARD W. SAMS
Publisher PHOTOFACT FOLDERS"

Here is "Life's" reply:

September 12, 1947

"Dear Mr. Sams:

"Thank you for your Day Letter of September 8, to Mr. Hicks which, in his absence from the office, has been referred to me.

"LIFE was not, as you inferred, discussing the entire radio repair industry in the article on the Cosmo Compo set; we stated that the new product would dismay *'those* radio repairmen who have relied on the customer's ignorance of electronics to foist huge repair bills on him. That there are such dishonest members of the profession is fairly well known.

"Probably the most startling discussion of the problem was published by READER'S DIGEST in the August 1941 issue. Undoubtedly you have read it and remember that as the result of their thorough investigation they concluded that the average American 'will be cheated 64 out of every 100 times by repair men who sell him tubes, batteries and service which his set doesn't need, or charge him for new parts they didn't put in. . . . Of the 304 shops tested, 195 tried by one dodge or another to take advantage of the customer. . . .'

"We appreciate your interest in presenting an argument for the radio technician, but feel sure you will agree that recognition of the 'cheaters' could not constitute an 'attack on a legitimate and honest profession.'

Sincerely yours,
B. F. HOLLAND
For the Editors"

And our final word:

"Mr. B. F. Holland, Editorial Offices,
LIFE Magazine,
Time and Life Building,
Rockefeller Center,
New York 20, N. Y.
"Dear Mr. Holland:

". . . and that you say is true of medicine, the ministry, the legal profession, and any other activity in life that I know anything about.

"If you will re-read my Day Letter of the 8th, it specifies 'defamatory insinuation' and it is to this insinuation in the article that I protest.

"At any rate, thank you for your reply.

Signed: HOWARD W. SAMS

HWS/d

"P.S. The READER'S DIGEST article you mention caused a wave of protest that is still history in our industry. It presented only one side of a biased and extremely limited survey. The only thing it proved was that it takes a lot of time to measure the electrical circuits, and to diagnose radio trouble. And in the unfair test of the 'rigged' set, the repairmen were simply trying to cover their cost since the public had not been educated to accept a fair charge for analysis service.

H.W.S."

★ ★

PHOTOFACT COVERAGE OF RECORDERS

It has been a long time since any product has had the public acceptance accorded the new magnetic recorders of the wire, paper tape and disc types. It is difficult to analyze just what particular factors are responsible for this popularity; but it is probable that the ability to put a half hour program on a single reel, plus record "re-usability"; the absence of special skill required for good results, plus scratchless reproductions of reasonable fidelity, are of most importance. Suffice it to say, we believe that magnetic recorders are here to stay; and their repair and maintenance will furnish added income for the electronic technician.

Accordingly, it is our intention to have PHOTOFACT coverage on all magnetic recorders offered for general sale. The Folder on Sears "Silvertone 771" appeared as 4716-32 in Set 26; data on others will be released at regular intervals. You will welcome and profit by this activity.

★ ★

FIELD EXPERIENCES

Here is your opportunity for passing practical service experiences to others for the benefit of all. For every service "Field Experience" pub-

lished, we issue to the author a certificate that is good for one PHOTOFACT Folder Set. Since it is impossible to verify the accuracy of contributions, we cannot be responsible for either the diagnosis made of the receiver trouble, or the results which will be obtained by following the suggested repair routine. All contributions become the property of Howard W. Sams & Company, Inc.

★ ★

HOWARD 906C
Photofact 477-18, Set 17

"Complaint: Fades completely out, even on strong signals, and then comes back again.

"The trouble was found to be in rosin joints where the tube filaments solder to the chassis. The remedy is obvious."

Submitted by: Mr. R. L. Gallihugh, 4110 S. Union, Traverse City, Michigan.

★ ★

SENTINEL 292K
Photofact 476-30, Set 16

"Complaint: Weak reception and distortion that sounds like a shorted coupling condenser.

"Cause: Second detector a.f. screen dropping resistor open (Item 39)."

Submitted by: Mr. William H. Niemeyer, Faulkton, South Dakota

★ ★

ZENITH 6G601M

"Complaint: Set dead.

"All voltages check o.k. except the oscillator grid which is supposed to have a minus 6 volts.

"Remedy: Replace defective oscillator grid condenser.

"I also found a bad 1LN5 in the i.f. stage. This tube checked perfectly in the tester, but a milliammeter in the plate circuit disclosed there was no plate current flowing."

Submitted by: Mr. G. Madigan, M & W Radio Repair, 393 Ridgewood Avenue, Brooklyn 8, New York

★ ★

SETCHELL CARLSON 416
Photofact 462-14, Set 2

"Complaint: Set inoperative. Loud hum when volume was turned up to maximum.

"Cause: Diode lead of i.f. transformer shorted to B-plus lead inside of i.f. can.

"Cure: Remove i.f. can, cut away excess wire from i.f. coils and resolder. Check 12SQ7 for possible damage and realign the i.f. coil. This is the output i.f., Item No. 28, in Sams Folder. A second set had the diode lead shorted to the i.f. can. No signal was heard at all.

★

PHILCO 46-350
Photofact 4610-24, Set 10

"Complaint: Intermittent operation. Volume would suddenly drop and become 'fuzzy.'

"Cause: Audio plate load resistor, Item No. 35, was broken and made intermittent contact.

"Cure: Replace the 1 meg. ½ watt resistor."

Submitted by: Mr. E. A. Hughes, E. A. Hughes Radio Sales and Service, Post Office Box 472, Richmond, Kentucky

★ ★

CADILLAC AUTO RADIO 7253207

"Complaint: Extremely noisy reception when station was tuned in. The trouble was isolated in the special antenna trimmer (dual unit), Part 7242472, which trims the antenna circuit, and which couples the signal to the r.f. amplifier grid. It had a cracked ceramic and damaged mica.

"This trimmer must be adjusted after the receiver is installed in the car. A short handled screw-driver is required, and care must be used so that the blade does not slip off the adjusting screw and damage the ceramic or the mica."

Submitted by: Mr. William O. Mattingly, Jr., Matt's Radio Service, 17303 Lenore, Detroit 19, Michigan

TRUETONE D3619
Photofact 4610-33, Set 10

"Complaint: Batteries wear out when operating from a.c.

"Resistor, Item 33, 1,975 ohms, 6 watt, was found laying against the volume control shaft, and this had shorted the resistor, causing its destruction.

"Remedy: Replace resistor with a 10-watt ceramic, keeping it away from the volume control shaft."

Submitted by: Mr. Harold E. LaFayette, LaFayette Radio Service, Plainville, Conn.

★ ★

R.C.A. 96T7

"We have serviced several R.C.A. 96T7 Receivers which were dead. It was found that the oscillators were not working and that the plate and screen voltages on the 6A8's were low or zero. The 1,000 ohm 10-watt resistor, which is a rough blue in color and is located near the 6J7 socket, was found to be defective. If this resistor is checked first, it will eliminate removing the push-button assembly to gain access to the 6A8 socket."

★

R.C.A. 97K

"An R.C.A. 97K came into our shop with the complaint that it would work on the dial tuning, but not on the push-button tuning. This set uses a 6K8 as the converter, but it had been replaced with a 6A8. As soon as the 6K8 was installed the trouble was remedied."

Submitted by: Mr. Robert W. Kettlety, 44 Bernice Avenue, Woonsocket, Rhode Island

★ ★

EMERSON 540A
Photofact 4710-10, Set 20

"Complaint: 35W4 burn-outs.

"Check the .05 mfd. 400-volt condenser, Item 7, for short. This condenser, connected from the 35W4 tap to ground to remove modulation hum, is placed next to the 35W4 where heat will run the compound into the tube socket; and a breakdown will put the line voltage across the dial light section of the tube and the dial light. Install the replacement condenser behind the speaker and away from the heat."

★

EMERSON 505 PORTABLE
Photofact 468-9, Set 8

"Complaint: Intermittently dead.

"Look for an extra-long self-tapping screw under the chassis, holding the r.f. can (Item 49). These longer screws sometimes ground the r.f. secondary. Replace with a shorter screw."

Submitted by: Mr. Vaughn W. Davis, Radio and Electric Service, Mineral Wells, Texas

★ ★

CHEVROLET 985793
Photofact 479-6, Set 19

"Complaint: No volume and distorted tone.

"I checked the receiver completely, and although the voltages were a little low, I could not at first find the source of trouble.

"While prodding around through the set, I pried the volume control away from the filter condenser and the music came in loud and clear. While the back of the volume control is covered, there is a little tab that bends over to hold it in place. This piece of metal grounds the electrolytic condenser."

Submitted by: Mr. Lee F. Coulter, Lee's Radio Service, 203 North Maple Avenue, Royal Oak, Michigan

PUBLICATION DATES

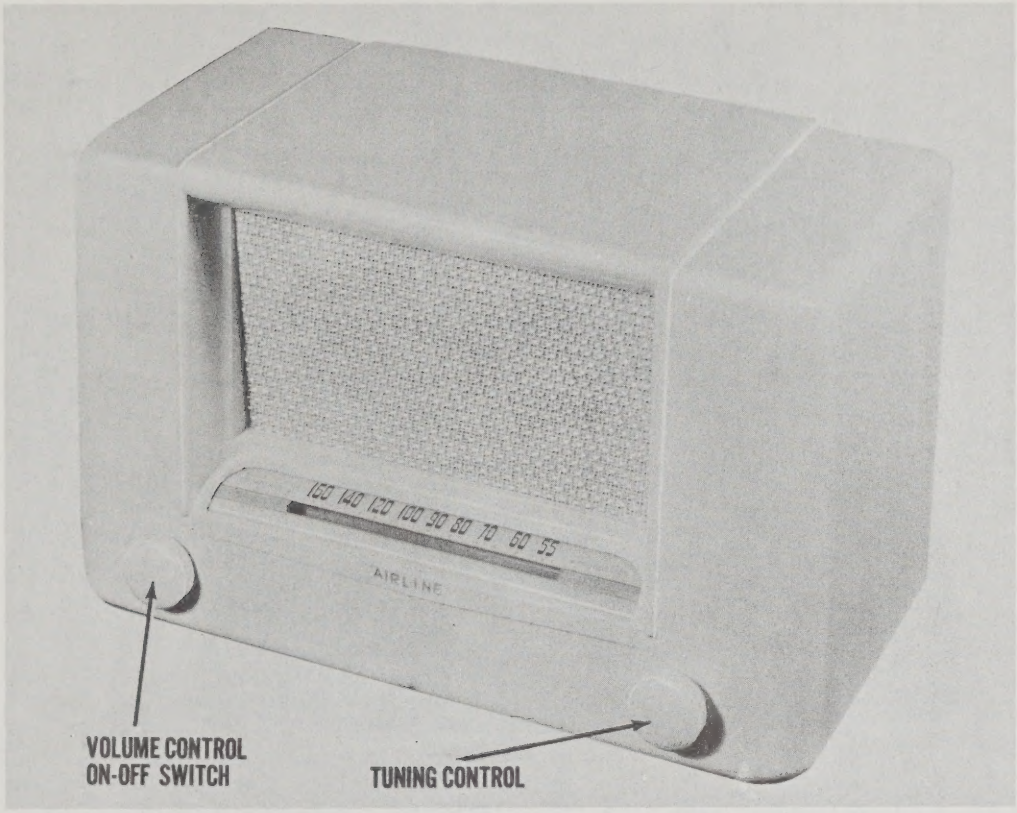
When will other sets of PHOTOFACT Folders be published?

Volume 3—Set No. 28 ..... **November 15**
Volume 3—Set No. 29 ..... **December 1**
Volume 3—Set No. 30 ..... **December 15**
Volume 4—Set No. 31 ..... **January 1**

If you have been unable to get any issues of PHOTOFACT *Folder Sets, send your order and money directly to us and we will see that you are supplied.*

AIRLINE MODELS
74WG-1509A, 74WG-1510A

AIRLINE MODELS
74WG-1509A, 74WG-1510A



AIRLINE MODEL 74WG-1510A

TRADE NAME	Airline, Models 74WG-1509A, 74WG-1510A
SUPPLIER	Montgomery Ward & Co., 619 Chicago,Ave., Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 Converter, 12SF7 IF Amp.-Det.-AVC, 12SJ7 AF Amp., 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC RATING .200 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to second reference line from right end of dial light diffuser strip. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 2 (grid) 12SF7. Low side to Pin 3 of 12SK7.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	.1 MFD.	High side to Pin 8 (grid) of 12SA7. Low side to Pin 3 of 12SK7.	"	"	"	A3,A4.	"
3	.1 MFD.	"	1620KC	"	"	A5	Adjust for maximum output.
4	50 MMFD.	High side to ext. ant. clip. Low side to chassis.	1400KC	Tune for maximum output.	"	A6	" " " "

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

AIRLINE MODELS
74WG-1509A, 74WG-1510A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp. Det.-AVC	12SF7	12SF7	7AZ	
4	AF Amp.	12SJ7	12SJ7	8N	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	45X344	FP311	DSB-304	TA-505		EZ5515	Filter
B	50	150				"		"	"
C	20	25				TA-25		BR202A	Cathode Bypass
8	.1	400	D67104	TP428	MPH-4-1	TC-1	484-.1	DT4P1	Line Filter
9	.2	200	B67204	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolation
10	.01	400	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
11	.01	400	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
12	.025	200	B67253	TP451	S-6-03	TC-13	484-025	DT4S25	AF Plate Decoup.
13	.1	200	B66104	TP428	S-4-1	TC-1	484-.1	DT4P1	AF Screen Bypass
14	.006	200	B67602	TP409	S-6-006	TC-26	484-006	DT6D6	Audio Coupling
15	.04	200	B67403	TP425	S-6-04	TC-14	484-05	DT4S4	Tone Comp.
16	.05	200	B66503	TP426	S-4-04	TC-15	484-05	DT4S5	AVC Filter
17	.05	200	B67503	TP426	S-4-04	TC-15	484-05	DT4S5	Decoupling
18	.001	400	D67102	TP404	S-6-001	TC-21	484-001	DT6D1	Ext. Ant. Isolation
19	470	500	47X467	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	AF Plate Bypass
20	100	500	47X476	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter
21	47	500	47X463	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Tone Comp.
22	47	500	47X446	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid
23	100	500	47X476	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

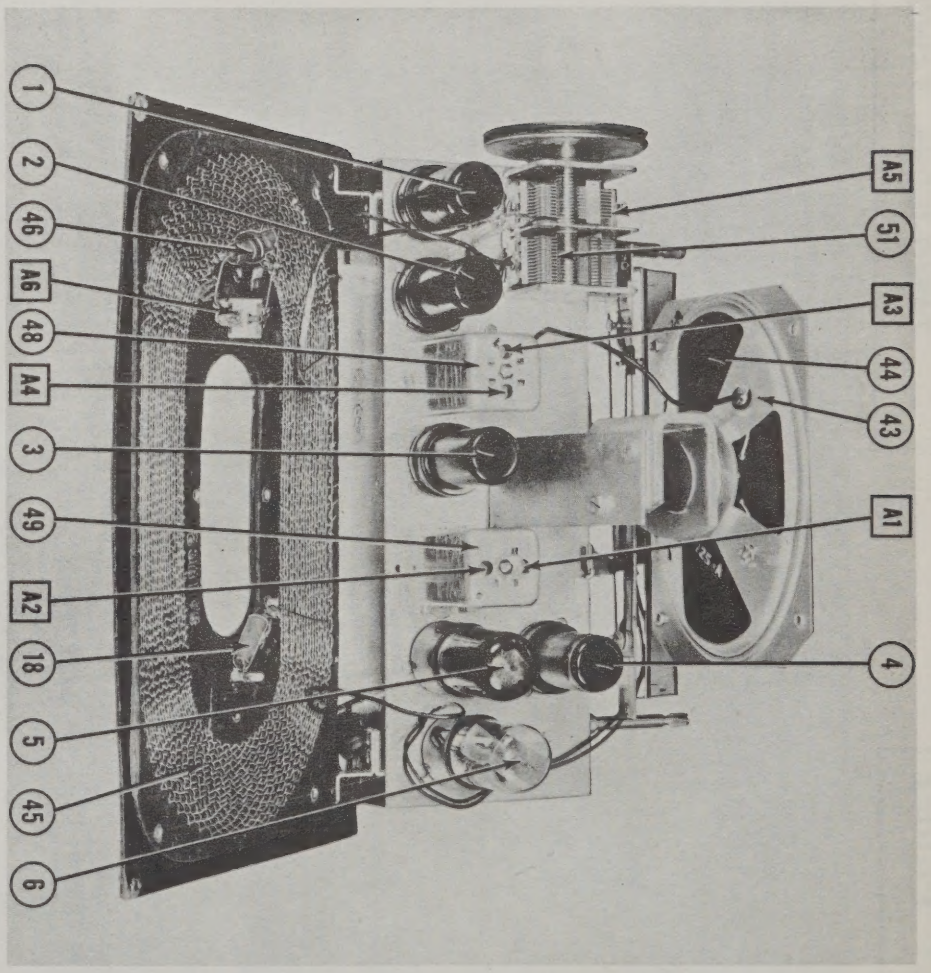
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
24	500KΩ	½	36X347				Volume Control & Sw.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
25	3300Ω	½	B84332	BTS-3300	Or.-Or.-Red RF Grid
26	100KΩ	½	B85104	BTS-100K	Br.-Blk.-Yl. Converter Grid
27	39KΩ	½	B84393	BTS-39K	Or.-White-Or. Oscillator Grid
28	470Ω	½	B85471	BTS-470	Yl.-Vi.-Br. Decoupling
29	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
30	15KΩ	½	B84153	BTS-15K	Br.-Grn.-Or. Tone Compensation
31	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
32	4.7 Meg.	½	B85475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
33	470KΩ	½	B84474	BTS-470K	Yl.-Vi.-Yl. AF Screen Dropping
34	33KΩ	½	B84333	BTS-33K	Or.-Or.-Or. AF Plate Load
35	82KΩ	½	B84823	BTS-82K	Gray-Red-Or. AF Plate Decoupling
36	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. Output Grid
37	180Ω	½	B83181	BW-½-180	Br.-Gray-Br. Output Cathode
38	1500Ω	1	C84152	BTA-1500	Br.-Grn.-Red Filter
39	27Ω	½	B84270	BW-½-27	Red-Vi.-Blk. Rectifier Ballast
40	39Ω	2	D84390	BW-2-39	Or.-White-Blk. Line Dropping
41	270KΩ	½	B84274	BTS-270K	Red-Vi.-Yl. Line Isolation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
42	3000Ω	4.0Ω	350Ω	.85Ω	51X116	A-3876*	T22S45*	A-2928*	*Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRLINE PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
43	PM	4.0Ω	12A431			
	CONE DIA.	VC DIA.				
44	4"x6"	1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER			

R F COILS

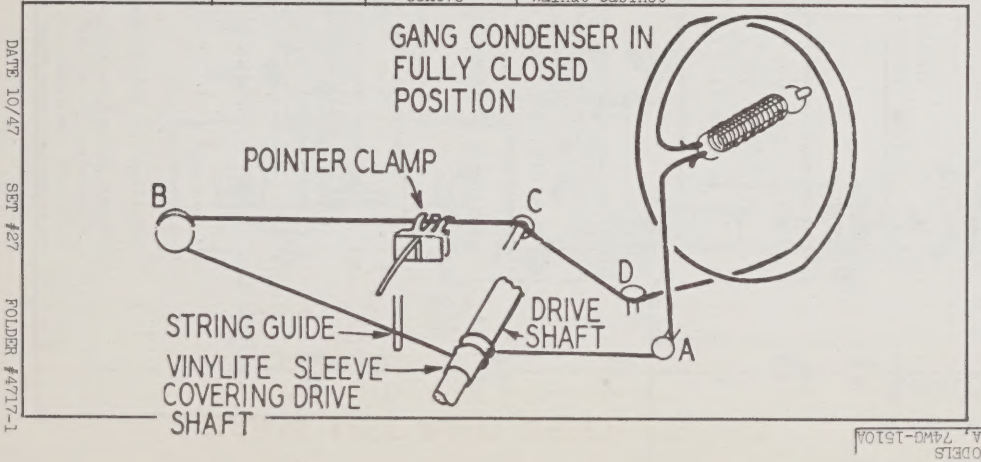
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	
45	Loop Ant.	.1Ω	.5Ω	26A448		Use Loop Ant. 26A448 for Ivory Cabinet.
46	Loop Load. Coil		2Ω			" " " 26A447 " Walnut "
47	Osc. Coil	.3Ω	6Ω	9A1805	14-1040	Items 45 & 46 are part of loop assembly
48	Input IF	21Ω	20Ω	9A1775	16-6658	
49	Output IF	21Ω	18Ω	9A1776	16-6660	

DIAL LIGHT

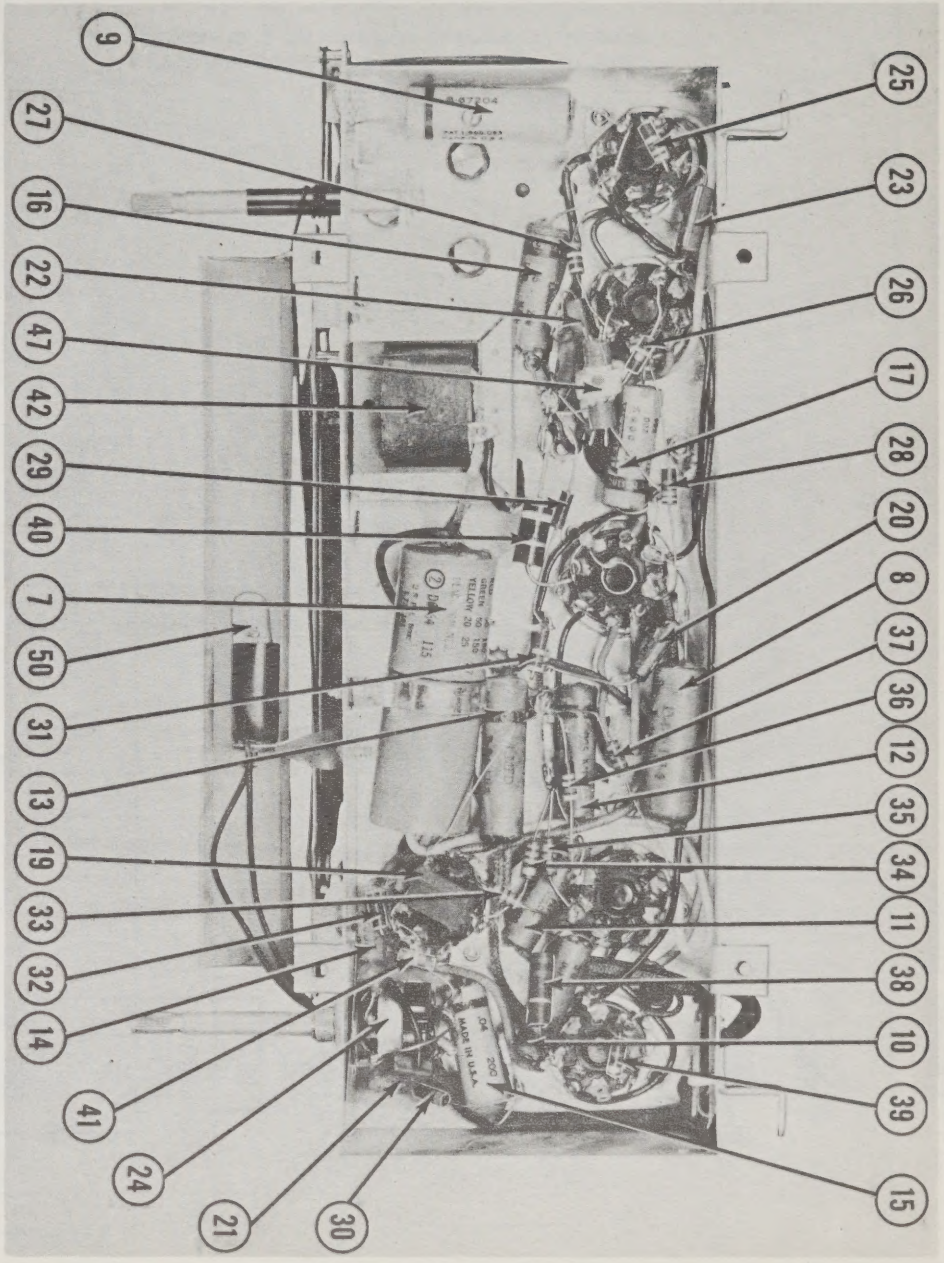
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRLINE PART No.		
50	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
51	2 Gang Var. Cap.	26A402	26-460 MMF, 33-200 MMF
A6	Trimmer	17A123	1.5 - 12 MMF Ant. Adj.
	Pointer	15X217	
	Dial	58X674	Ivory Cabinet
	"	58X675	Walnut Cabinet



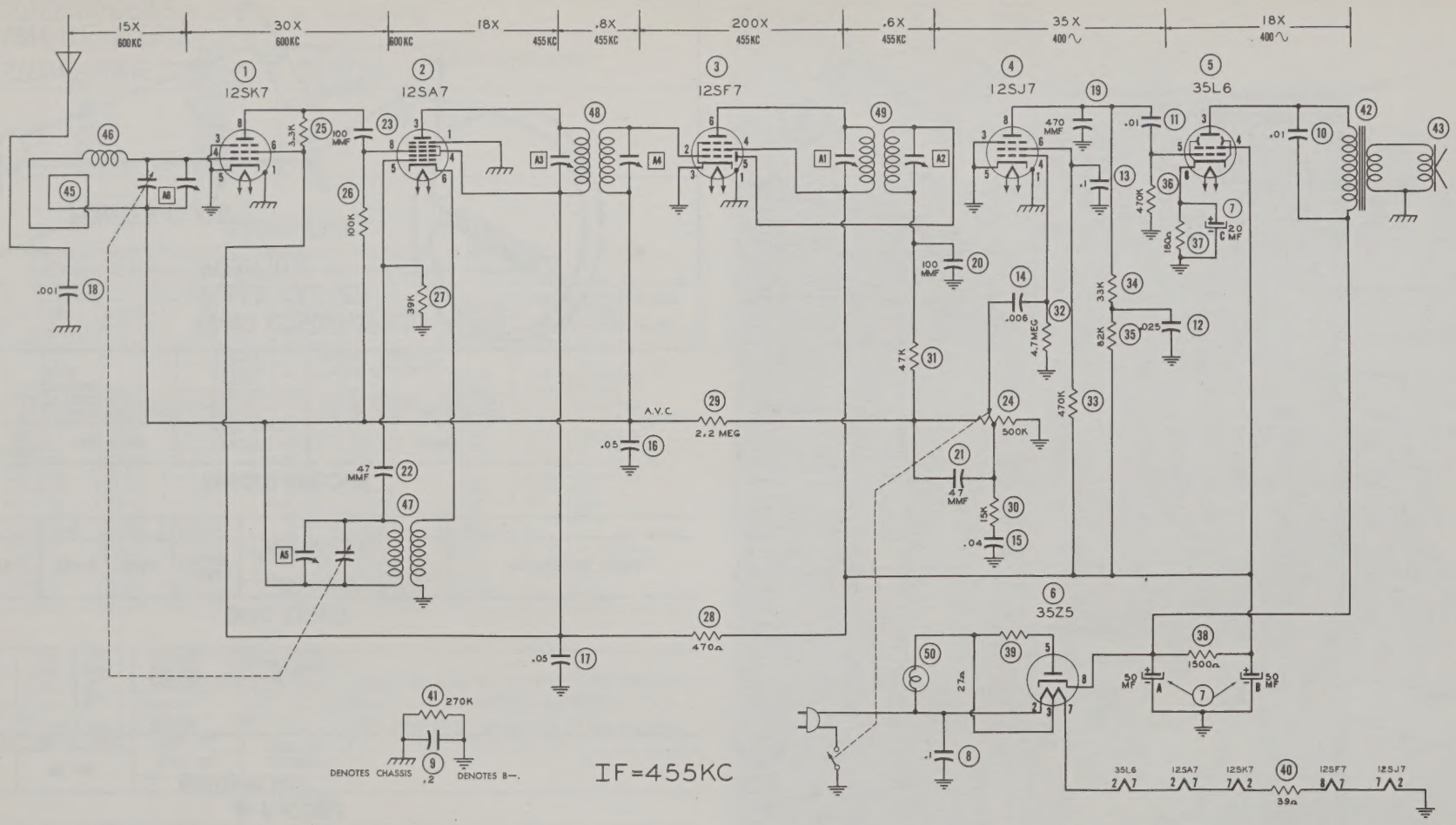
CHASSIS—BOTTOM VIEW



DATE 10/47 SET #27 FOLDER #4717-1

AIRLINE MODELS 74WG-1509A, 74WG-1510A

AIRLINE MODELS 74WG-1509A, 74WG-1510A



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	0V.	30VAC	0V.	-.4VDC	0V.	65VDC	43VAC	45VDC
2	12SA7	0V.	55VAC	65VDC	65VDC	-4.2VDC§	0V.	43VAC	-.4VDC
3	12SF7	0V.	-.4VDC	0V.	73VDC	-.4VDC	73VDC	12VAC	24VAC
4	12SJ7	0V.	0V.	0V.	-.7VDC	0V.	17VDC	12VAC	22VDC
5	35L6GT	0V.	87VAC	110VDC	73VDC	0V.	0V.	55VAC	4.3VDC
6	35Z5GT	0V.	117VAC	113VAC	0V.	110VAC	0V.	87VAC	118VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	280KΩ	65Ω	0Ω	2.5 Meg.	0Ω	50KΩ	80Ω	53KΩ
2	12SA7	280KΩ	90Ω	50KΩ	50KΩ	40KΩ	.3Ω	80Ω	2.6 Meg.
3	12SF7	280KΩ	2.5 Meg.	0Ω	50KΩ	500KΩ	50KΩ	12Ω	26Ω
4	12SJ7	280KΩ	0Ω	0Ω	5 Meg.	0Ω	520KΩ	12Ω	165KΩ
5	35L6GT	INF.	120Ω	50KΩ	50KΩ	500KΩ	INF.	90Ω	200Ω
6	35Z5GT	INF.	152Ω	148Ω	INF.	180Ω	INF.	120Ω	50KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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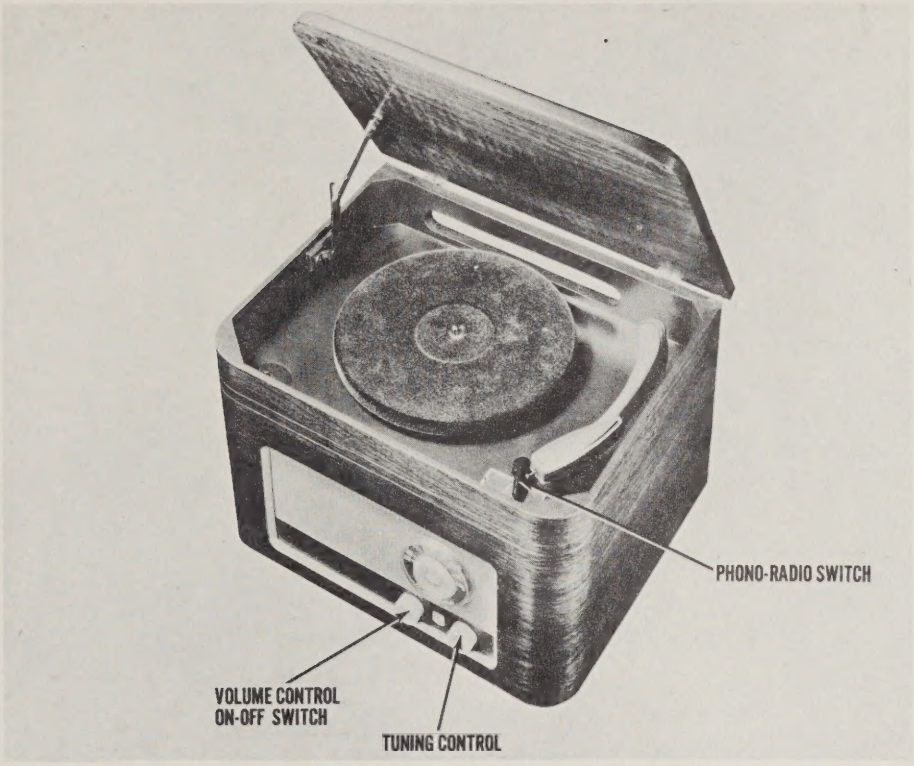
4717-1

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRLINE MODEL
74WG-2004A



AIRLINE MODEL
74WG-2004A

AIRLINE MODEL 74WG-2004A

TRADE NAME	Airline, Model 74WG-2004A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave, Chicago, Ill.
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	540-1600KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 4 (grid) of 12SK7. Low side to Pin 5.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	.1 MFD.	High side to Pin 8 (grid) 12SA7. Low side to Pin 5 of 12SK7.	"	"	"	A3,A4.	Adjust for maximum output.
3	.1 MFD.	"	1620KC	"	"	A5	" " " "
4	50 MMFD	High side to ext. ant. clip. Low side to chassis.	1400KC	Tune for maximum output.	"	A6	Replace receiver in cabinet. Adjust A6 for maximum output. Set pointer at 1400KC mark.

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DATE 10/47 SET #47 FOLDER #4717-2

PARTS LIST AND DESCRIPTIONS

AIRLINE MODEL 74WG-2004A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	45X341	2N521	DSB-2x50-150	TA-505		EZ5515	Filter - Red
B	50	150							" - Blue
7	.1	400	D67104	TP428	MPH-4-1	TC-1	484-.1	DT4P1	Line Filter
8	.2	200	B67204	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolation
9	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
10	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	" "
12	.08	200	B66803	TP452	S-4-1	TC-1	484-075	DT4P1	Phono Isolation
13	.05	200	B66503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	.001	600	D67102	TP404	S-6-001	TC-21	684-001	DT6D1	Ext. Ant. Isolation
15	270	500	47X445	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
16A	50	300	45X341	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Diode Filter
B	50	300		MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	" "

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	½	36X368	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

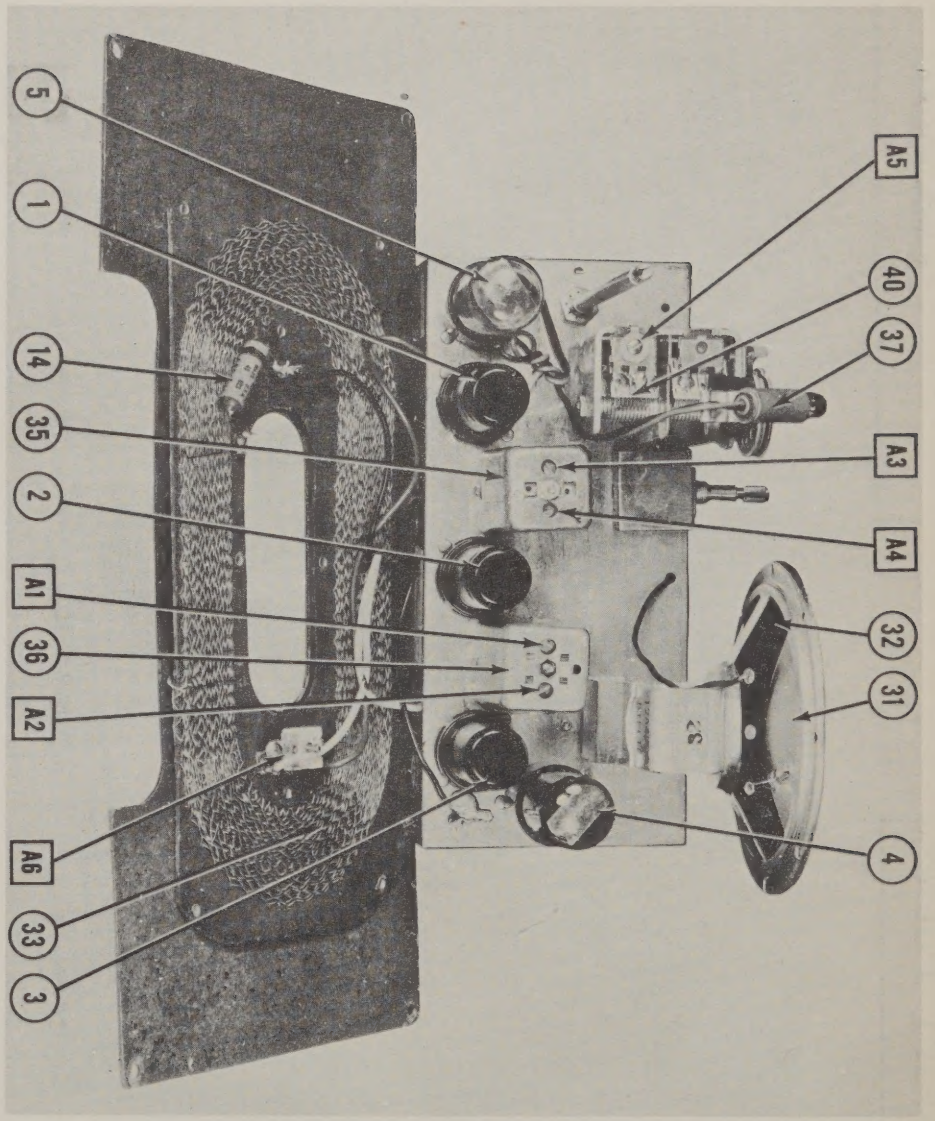
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	IDENTIFICATION CODES
18	22KΩ	½	B84223	BTS-22K	Red-Red-Or. Oscillator Grid
19	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	1 Meg.	½	B85105	BTS-1 Meg.	Br.-Blk.-Grn. Series Phono
21	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
22	6.8 Meg.	½	B85685	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
23	470KΩ	½	B84474	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
24	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. Output Grid
25	150Ω	½	B84151	BW-½-150	Br.-Grn.-Br. Output Cathode
26	1500Ω	1	C85152	BTA-1500	Br.-Grn.-Red Filter
27	27Ω	½	B84270	BW-½-27	Red-Vi.-Blk. Surge Limiter
28	33Ω	1	C85330	BW-1-33	Or.-Or.-Blk. Line Dropping
29	220KΩ	½	B85224	BTS-220K	Red-Red-Yl. Line Isolation

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
30	2100Ω	3.4Ω	170Ω	.6Ω	51X132	A-3876	T22S45	A-2928	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA	INSTALLATION NOTES
	FIELD	VC IMP.		ST-107*		
31	PM	3.4Ω	12A429	Mod. P5-V		*Fabricate new mounting bracket.
	CONE DIA.	VC DIA.				
32	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: MEISSNER PART No.	
33	Loop Ant.	.1Ω	1.2Ω	26A468		
34	Osc. Coil	.5Ω	6Ω	9A1911	14-1040	Add 50 MMFD from grid to high side tuning cap.
35	Input IF	22Ω	23Ω	9A1775	16-6658	
36	Output IF	21Ω	18Ω	9A1783	16-6660	

DIAL LIGHT

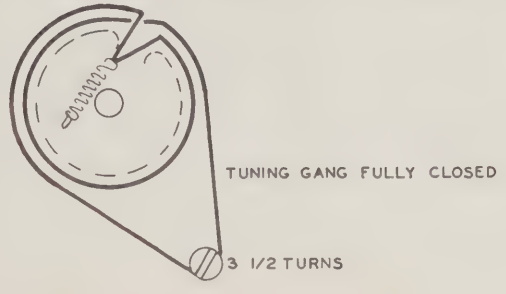
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA	INSTALLATION NOTES
37	Bayonet	6-8	0.15	Brown			Type 47

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: ASTATIC PART No.	REMARKS
38		L-75	

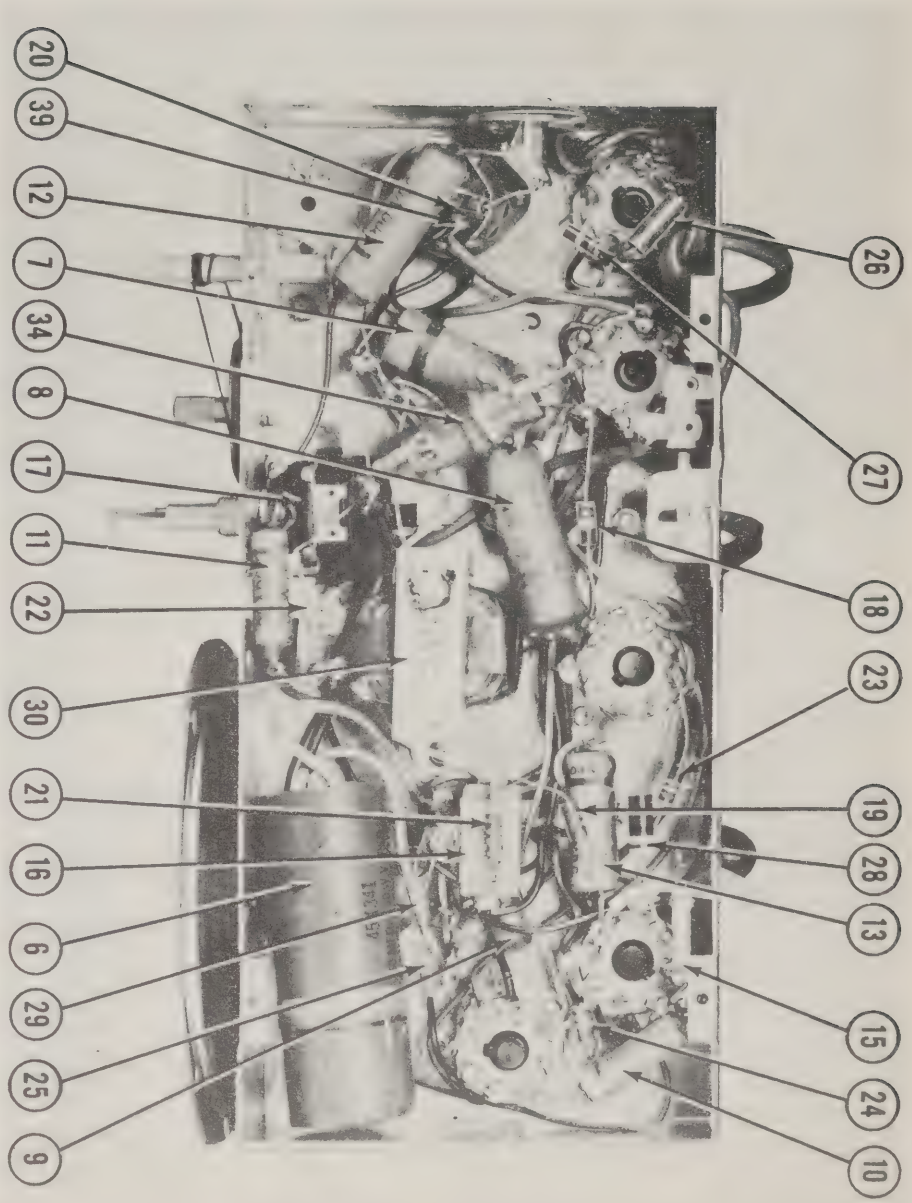
MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
39	Switch	2A255	Radio-Phono
40	2 Gang Var. Cap.	14A[illegible]6	16-470 MMF, 38-202 MMF
A6	Trimmer	17A[illegible]7	1.5-15 MMF Ant. Adj.
	Dial	58X685	
	Pointer	15X239	
	Switch	2A170	Phono Motor On-Off



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



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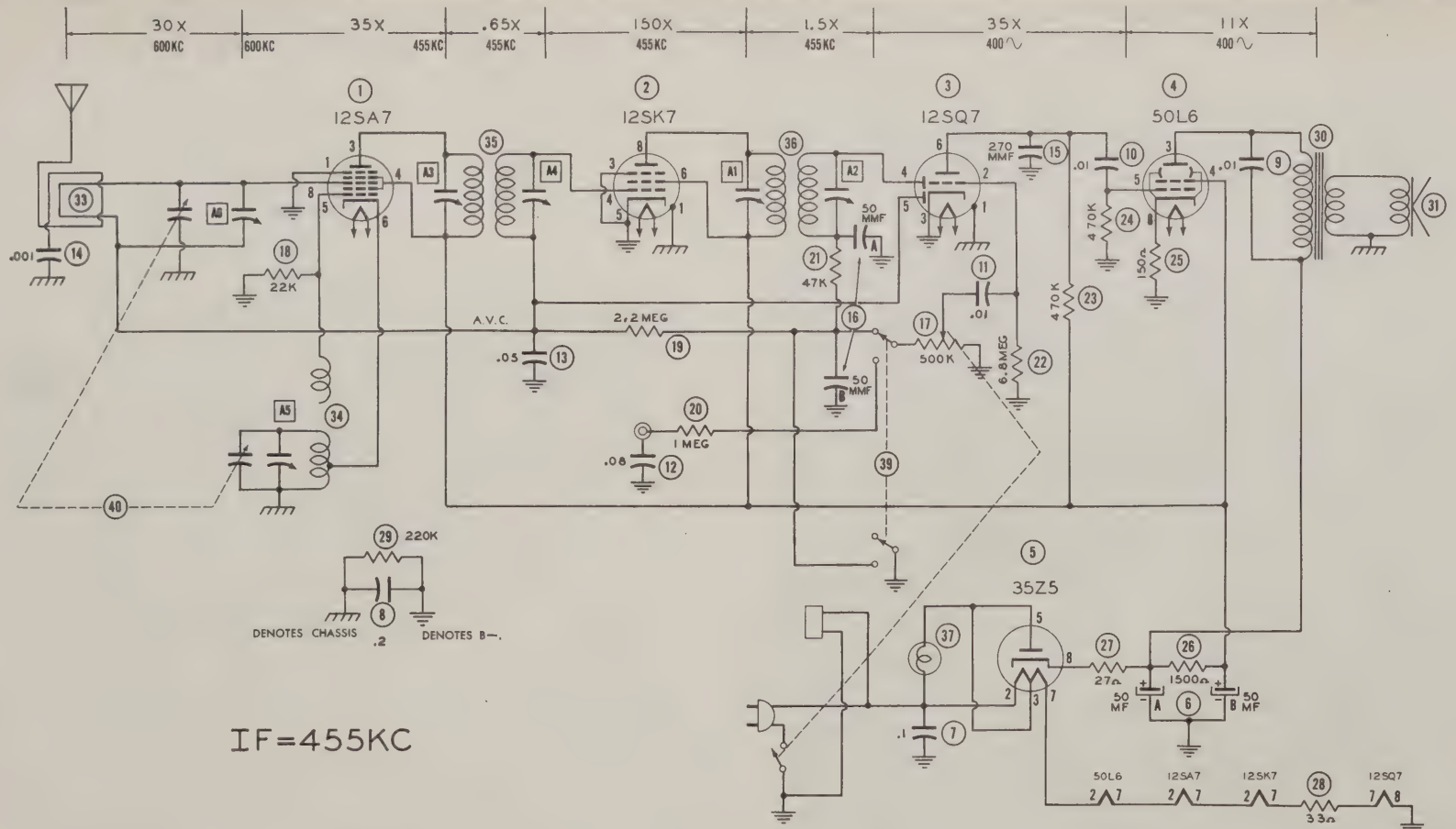
DATE 10/47 SET #47 FOLDER #4717

[AIRLINE MODEL 24WG-2004A]



RADIO-PHONO SWITCH IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	40VAC	82VDC	82VDC	-3.5VDC§	0V.	30VAC	-.7VDC
2	12SK7	0V.	30VAC	0V.	-.7VDC	0V.	82VDC	16VAC	82VDC
3	12SQ7	0V.	-.7VDC	0V.	-.3VDC	-.7VDC	52VDC	12VAC	0V.
4	50L6GT	0V.	87VAC	107VDC	82VDC	0V.	0V.	40VAC	5.1VDC
5	35Z5GT	0V.	117VAC	112VAC	82VDC	112VAC	113VDC	87VAC	116VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	240KΩ	75Ω	60KΩ	60KΩ	22KΩ	.6Ω	63Ω	2.6 Meg.
2	12SK7	240KΩ	63Ω	0Ω	2.6 Meg.	0Ω	60KΩ	50Ω	60KΩ
3	12SQ7	240KΩ	7 Meg.	0Ω	440KΩ	2.6KΩ	530KΩ	12Ω	0Ω
4	50L6GT	INF.	120Ω	60KΩ	60KΩ	500KΩ	INF.	75Ω	150Ω
5	35Z5GT	INF.	150Ω	145Ω	60KΩ	145Ω	60KΩ	120Ω	60KΩ

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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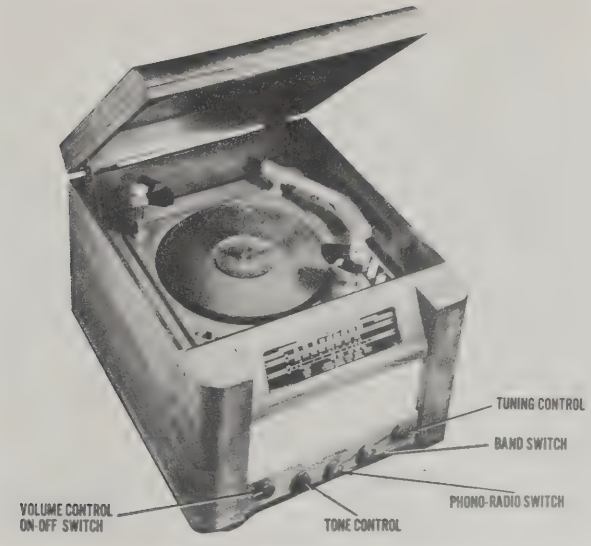
4717-2

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ANDREA
MODEL CO-U15



ANDREA
MODEL CO-U15

ANDREA MODEL CO-UI5

TRADE NAME	Andrea, Model CO-UI5
MANUFACTURER	Andrea Radio Corp., 27-01 Bridge Plaza North, Long Island City, N.Y.
TYPE SET	AC Operated Radio Phono Combination Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	103-130, 220-250 Volts AC
RATING	.250 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC
SHORT WAVE	5.8 - 22MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loosen self-tapping screw located below tuning drum. Mount a short length of stiff wire under this screw and extend it up to the reference scale to be used as a pointer. Turn tuning cap. fully closed and set pointer at the 100 mark. This scale can now be used to calibrate the receiver. Remove this wire before installing in cabinet. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 8 (grid) of 12SA7. Low side to B-.	455KC	BC (counter clock-wise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2	400Ω carbon res.	High side to ant. terminal. Low side to chassis.	20.0MC	SW (clock-wise)	10 on reference scale (see pre-alignment notes)	"	A5	Adjust for maximum output. Set signal generator to 20.9MC. The image should be heard. If it is not, reset signal generator to 20MC and open A5 to next peak. Recheck for image.
3	"	"	"	"	Tune for maximum output.	"	A6	Rock tuning cap. and adjust for maximum output.
4	250MMFD	"	1500KC	BC	12.5 on reference scale.	"	A7,A8	Adjust for maximum output in order given.
5	250MMFD	"	600KC	"	Tune for maximum output. (approx. 83.5 on reference scale.)	"	A9	Rock tuning cap. and adjust for maximum output. Repeat Steps 4 and 5 until no further improvement can be made.

DISASSEMBLY INSTRUCTIONS

1. Remove five push-on type control knobs.
2. Remove two wood screws holding lid support to cabinet.
3. Remove eleven Phillips head screws holding record changer mounting board and remove phono-motor plug and phono-pickup plugs from chassis. Remove mounting board from cabinet.
4. Remove two wood screws holding loop antenna in cabinet.
5. Remove four screws holding chassis in cabinet.
6. Remove three hex head nuts holding speaker in cabinet.
7. Remove speaker, chassis and loop from cabinet.

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DATE 10/47 SET #27 FOLDER #4717-3

PARTS LIST AND DESCRIPTIONS

ANDREA MODEL SC-PTC

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ANDREA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ANDREA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	HC-198	FP311	DY-604020-150	EL-352	AF1010D	UP64215	▲ Filter
B	60	150							■ "
C	20	25					PRS25-25		Cathode Bypass
7	.1	400	HC-4	TP428	MPM-4-1	TC-1	484-.1	DT4P1	Line Filter
8	.025	600	HC-192	TP451	S-6-03	TC-13	684-025	DT6S25	Output Plate Bypass
9	.003	600	HC-20	TP406	S-6-003	TC-23	684-003	DT6D3	Tone Comp.
10	.05	200	HC-6	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
11	.003	600	HC-20	TP406	S-6-003	TC-23	684-003	DT6D3	" "
12	.25	200	HC-19	TP430	S-4-25	TC-2	484-.25	DT4P25	Phono Isolation
13	.01	400	HC-9	TP421	S-4-01	TC-11	484-01	DT4S1	Phono Coupling
14	.25	200	HC-19	TP430	S-4-25	TC-2	484-.25	DT4P25	RF Bypass Pwr. Supp.
15	.01	400	HC-9	TP421	S-4-01	TC-11	484-01	DT4S1	IF Cathode Bypass
16	.05	200	HC-6	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
17	.01	400	HC-9	TP426	S-4-01	TC-11	484-01	DT4S1	Ext. Ant. Coupling
18	170	500	HC-95	MC236	MO.5-315	1FM-315	1468-00015	5W5T15	Diode RF Filter
19	170	500	HC-95	MC236	MO.5-315	1FM-315	1468-00015	5W5T15	" " "
20	100	500	HC-93	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	AF Grid Bypass
21	2000	500	HCM-1606	MC457	MW.5-22	1FM-22	1467-002	1W5D2	Tone Comp.
22	100	500	HC-93	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid
23	3500	500	HC-105						Fixed Pad.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ANDREA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
24A	1 Meg.	½	GRV-804	UM159	D11-137	AM-61-S	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 24A per instructions
C	Switch		" "	M26	41	SW-A	" " " "
25A	500KΩ	½	GRV-805	UM156	D11-133	AM-58-S	Tone Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 25A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ANDREA PART No.	IRC PART No.	IDENTIFICATION CODES
26	20KΩ	½	GR-28	BTS-22K	Red-Blk.-Or. Oscillator Grid
27	150Ω	½	GR-112	BW-½-150	Br.-Grn.-Br. IF Cathode
28	2 Meg.	½	GR-23	BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
29	100KΩ	½	GR-7	BTS-100K	Br.-Blk.-Yl. Diode RF Filter
30	5 Meg.	½	GR-111	BTS-4.7 Meg.	Grn.-Blk.-Grn. AF Grid
31	240KΩ	1		BTA-220K	Red-Yl.-Yl. AF Plate Load
32	150Ω	½	GR-112	BW-½-150	Br.-Grn.-Br. Output Cathode
33	240KΩ	½	GR-46	BTS-220K	Red-Yl.-Yl. Phono Shunt
34	300KΩ	½	GRC-244	BTS-330K	Or.-Blk.-Yl. Series Phono
35	100KΩ	½	GR-7	BTS-100K	Br.-Blk.-Yl. Tone Compensation
36A	150Ω	20	GRW-507		Voltage Dropping-See Note
B	30Ω				" " " "
37A	290Ω	50	GRW-505		Line Dropping - " "
B	100Ω				" " " "
38A	460Ω	50	GRW-506		" " " "
B	155Ω				" " " "

Note-Used in export models.

CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: ANDREA PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
39	.063A	290Ω	5.5 Henries	ST-3003	C-1707	T20C52	C-2975	

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ANDREA PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
40	1750Ω	3.6Ω	150Ω	.5Ω	Part of SL-4002	A-3376	T22546	A-2928	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: ANDREA PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
	FIELD	VC IMP.		ST-107		
41	PM	3.6Ω	SL-4002	Mod. P8-V		
	CONE DIA.	V. DIA.				
42	4-5/8"	1/2"	NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: ANDREA PART No.	REPLACEMENT DATA: MEISSNER PART No.	
43	Loop Ant.	.6Ω	.3Ω	SA-277		
44	SW Ant.Coil	.7Ω	0Ω	SA-257	14-1044	
45A	BC Osc.Coil	1Ω	4.5Ω	SA-274		Item 45A & 45B are wound on same form.
b	SW " "	0Ω	0Ω			
46	Input IF	17Ω	17Ω	SA-204A	16-6658	
47	Output IF	22Ω	22Ω	SA-205D	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: ANDREA PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
48	Bayonet	6-8	0.15	Brown	FM-6096		Type 47

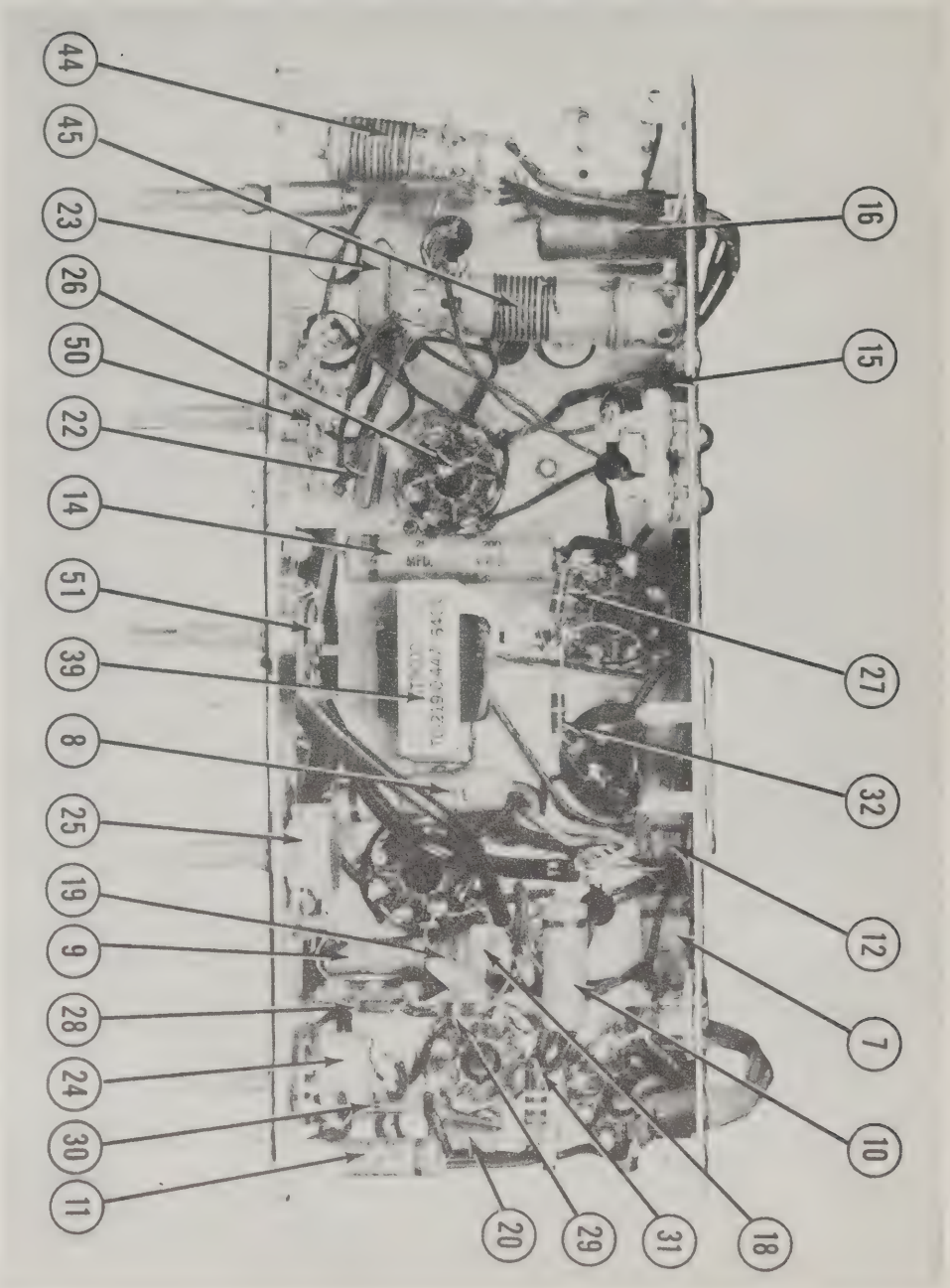
PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: ANDREA PART No.	REPLACEMENT DATA: ASTATIC PART No.	REMARKS
49		L-70	

MISCELLANEOUS

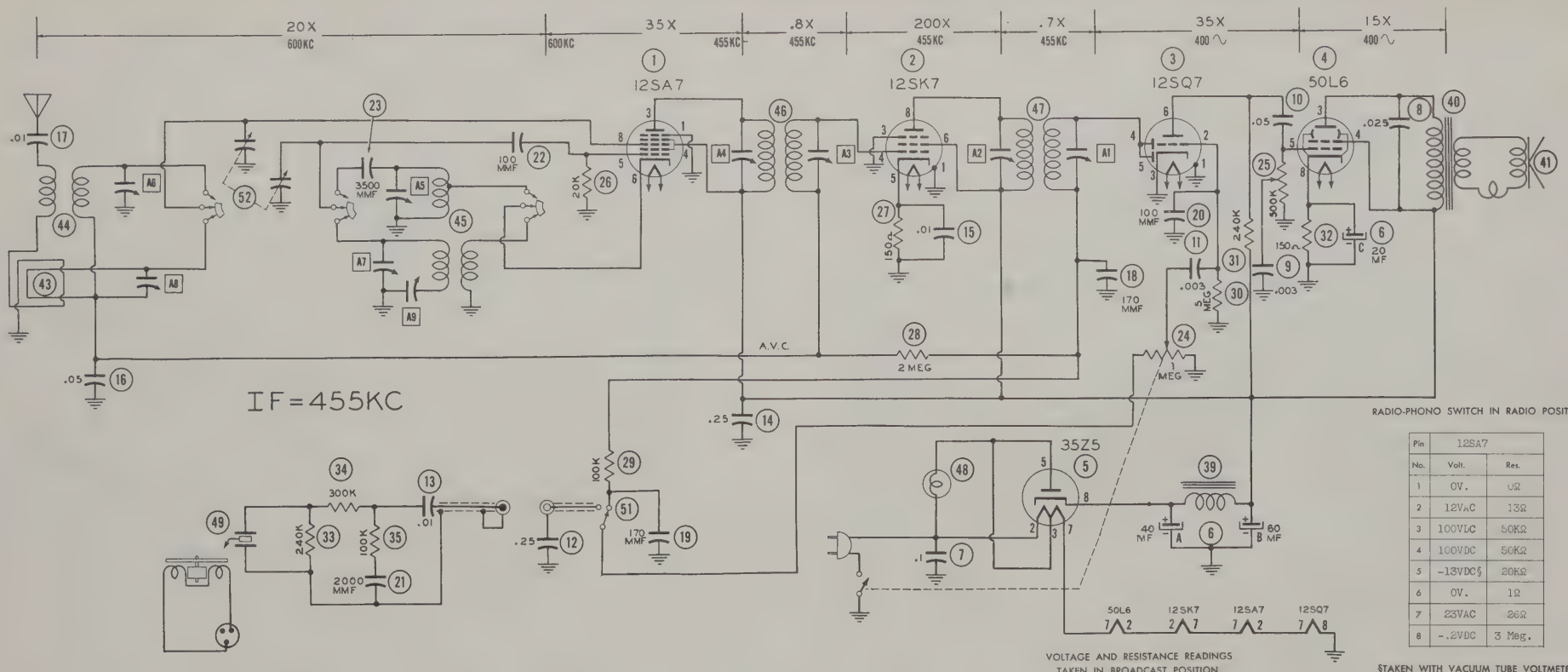
ITEM No.	PART NAME	ANDREA PART No.	NOTES
50	Bandswitch	FM-5044	3 Pole - 2 Position
51	Switch	FM-5046	Radio-Phono
52	2 Gang Var.Cap.	FM-897	15-552 MMF (each section)
A5 } A7 }	Dual Trimmer	HC-738	{SW Osc. Adj. BC Osc. Adj.
A6 } A9 }	Dual Trimmer	FM-613	{SW Ant. Adj. BC Osc. Padder

CHASSIS—BOTTOM VIEW

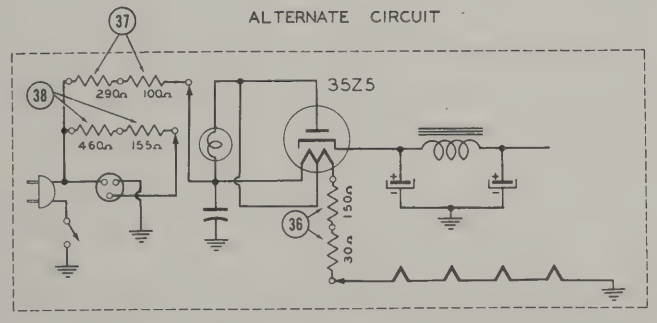


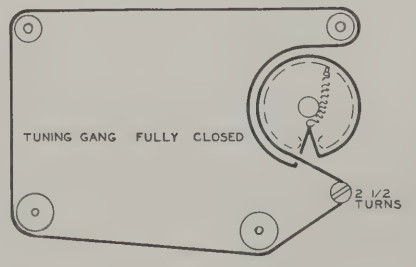
DATE 10/47 SET #27 FOLDER #4717-3

ANDREA MODEL SC-U15



Pin No.	12SA7 Volt.	12SA7 Res.
1	0V.	0Ω
2	12VAC	13Ω
3	100VDC	50KΩ
4	100VDC	50KΩ
5	-13VDC§	20KΩ
6	0V.	1Ω
7	23VAC	26Ω
8	-.2VDC	3 Meg.





DIAL CORD DRIVE

Pin No.	12SK7 Volt.	12SK7 Res.	12SQ7 Volt.	12SQ7 Res.
1	0V.	0Ω	0V.	0Ω
2	35VAC	38Ω	-.8VDC	5 Meg.
3	0V.	0Ω	0V.	0Ω
4	-.8VDC	3 Meg.	-.3VDC	1 Meg.
5	1.4VDC	150Ω	-.3VDC	1 Meg.
6	100VDC	50KΩ	60VDC	290KΩ
7	23VAC	26Ω	12VAC	13Ω
8	100VDC	50KΩ	0V.	0Ω

Pin No.	50L6GT Volt.	50L6GT Res.	35Z5GT Volt.	35Z5GT Res.
1	0V.	INF.	0V.	INF.
2	35VAC	38Ω	117VAC	120Ω
3	95VDC	50KΩ	113VAC	115Ω
4	100VDC	50KΩ	0V.	0Ω
5	0V.	500KΩ	113VAC	115Ω
6	0V.	0Ω	100VDC	50KΩ
7	82VAC	90Ω	82VAC	90Ω
8	5.4VDC	150Ω	118VDC	50KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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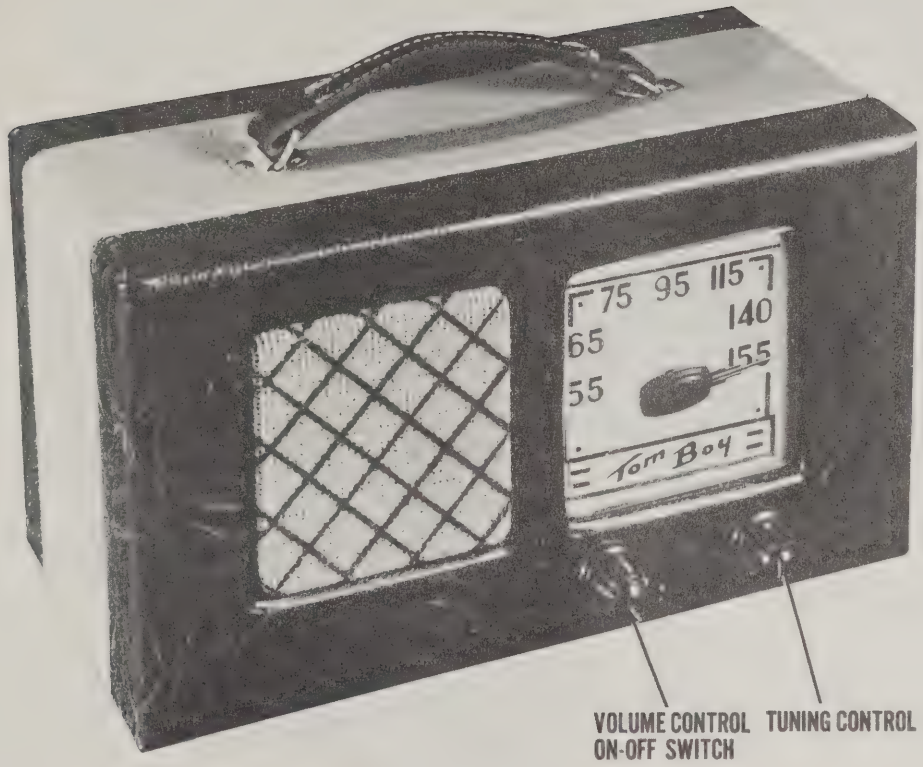
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4717-3

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AUTOMATIC MODEL TOMBOY
BATTERY OPERATED



AUTOMATIC MODEL TOMBOY
BATTERY OPERATED

AUTOMATIC MODEL "TOM BOY"

TRADE NAME	Automatic, Model "Tom Boy"
MANUFACTURER	Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston 15, Mass.
TYPE SET	Battery Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output.
POWER SUPPLY	1½ Volt "A" Supply & 67½ Volt "B" Supply
RATING	230 MA @ 1.5 Volts DC & 10MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	538-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2		Loop	1600KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

AUTOMATIC MODEL "TOM BOY"
BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AUTOMATIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	20	150	VEC-3	TC45	M-20-150	UT-201	PRSA150-20	BR2015	Pwr. Supply Bypass
6	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Output Plate Bypass
7	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
8	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	" "
9	.1	200		TP428	S-4-1	TC-1	484-.1	DT4P1	Screen Bypass
10	.1	200		TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
11	100			MC235	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
12	200			MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Diode Filter
13	100			MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid
34	.01			TP421	S-4-01	TC-11	484-01	DT4S1	AF Screen Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
14	750KΩ	½	RV-44B				Volume Control & Sw.

RESISTORS

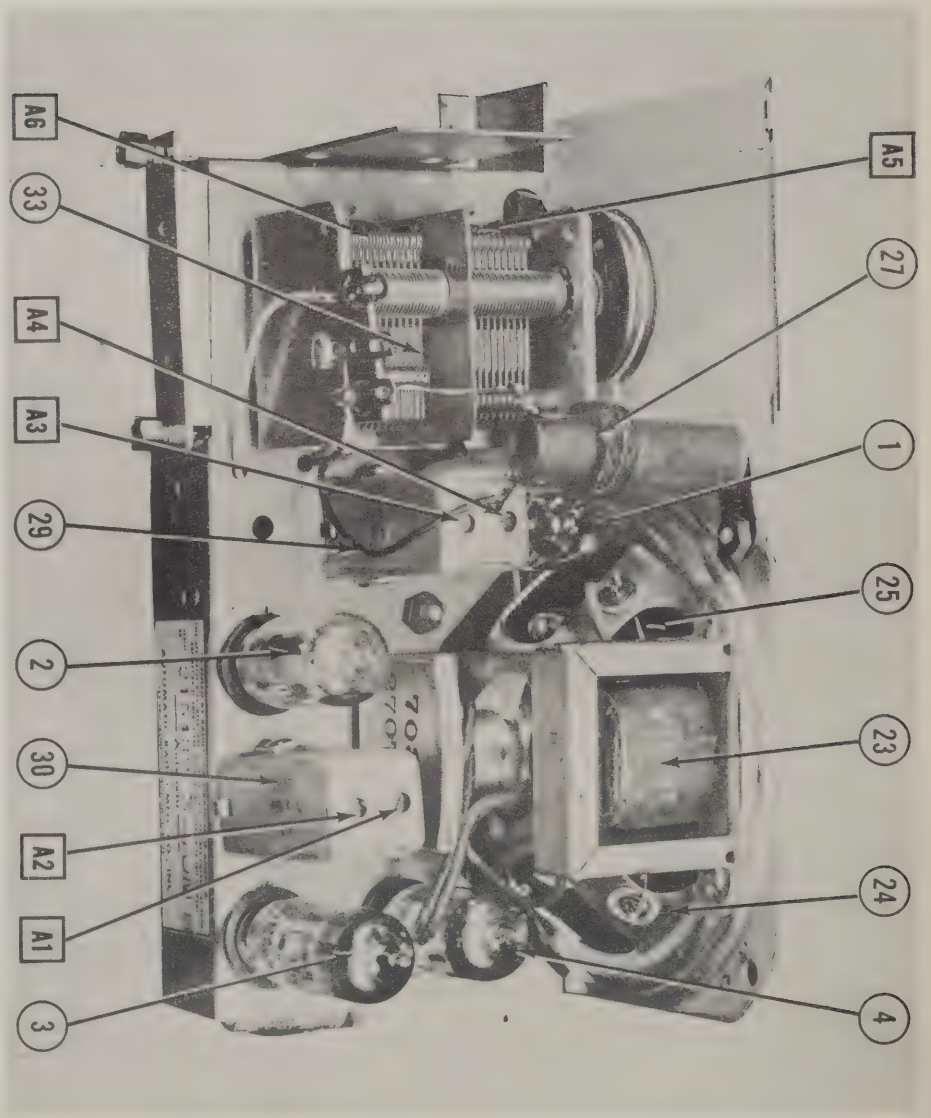
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	IRC PART No.	IDENTIFICATION CODES
15	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Oscillator Grid
16	2 Meg.	½		BTS-2.2 Meg	Red-Blk.-Grn. AVC Network - See Note 1
17	12KΩ	½		BTS-12K	Br.-Red-Or. Screen Dropping - See Note 2
18	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AF Grid - See Note 3
19	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Screen Dropping
20	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
21	2 Meg.	½		BTS-2.2 Meg	Red-Blk.-Grn. Output Grid
22	600Ω	½		BTS-560	Blue-Blk.-Br. Bias

Note 1 - Some models use 3 Meg. in this application.
Note 2 - Some models use 7500Ω in this application.
Note 3 - Some models use 10 Meg. in this application.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AUTOMATIC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
23	5000Ω	4.3Ω	440Ω	1.0Ω	Part of PM-703	A-3877	T22S46	A-2930	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA AUTOMATIC PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-113		
24	PM	4.3Ω	PM-703	Mod. P4-X		
	CONE DIA.	VC DIA.				
25	4"	1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AUTOMATIC PART No.	REPLACEMENT DATA MEISSNER PART No.	
26	Loop Ant.		1Ω			
27	Loop Load. Coil		1Ω			
28	Osc. Coil	1Ω	5.5Ω		14-1040	
29	Input IF	33Ω	33Ω	A575A	16-6668	
30	Output IF	33Ω	33Ω	A575A	16-6669	

BATTERIES

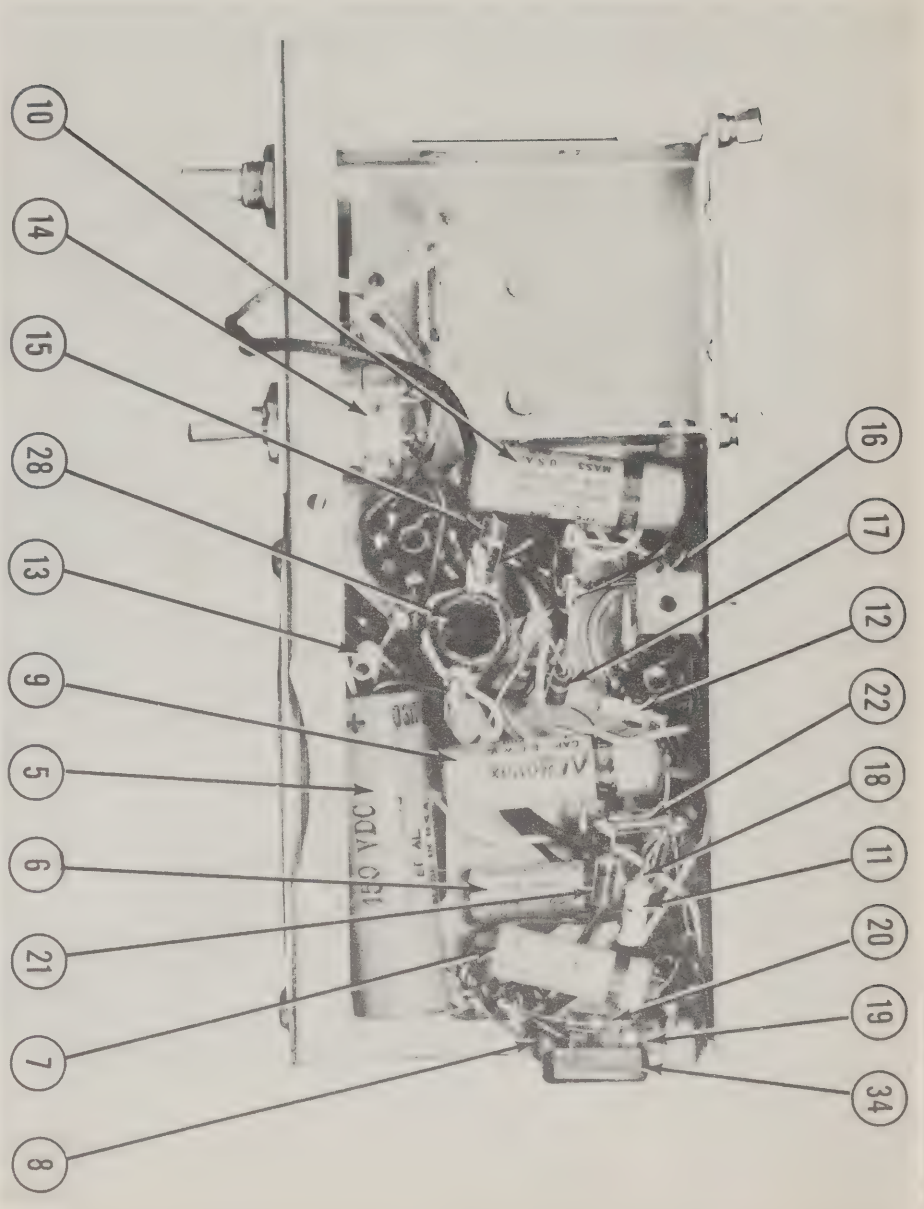
ITEM No.	VOLTAGE	AUTOMATIC PART No.	EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	INSTALLATION NOTES
31	1½V "A"		(2) #935			2 Used in parallel
32	67½V "B"			#467		

MISCELLANEOUS

ITEM No.	PART NAME	AUTOMATIC PART No.	NOTES
33	2 Gang Var. Cap.		31-405 MMF, 31-202 MMF

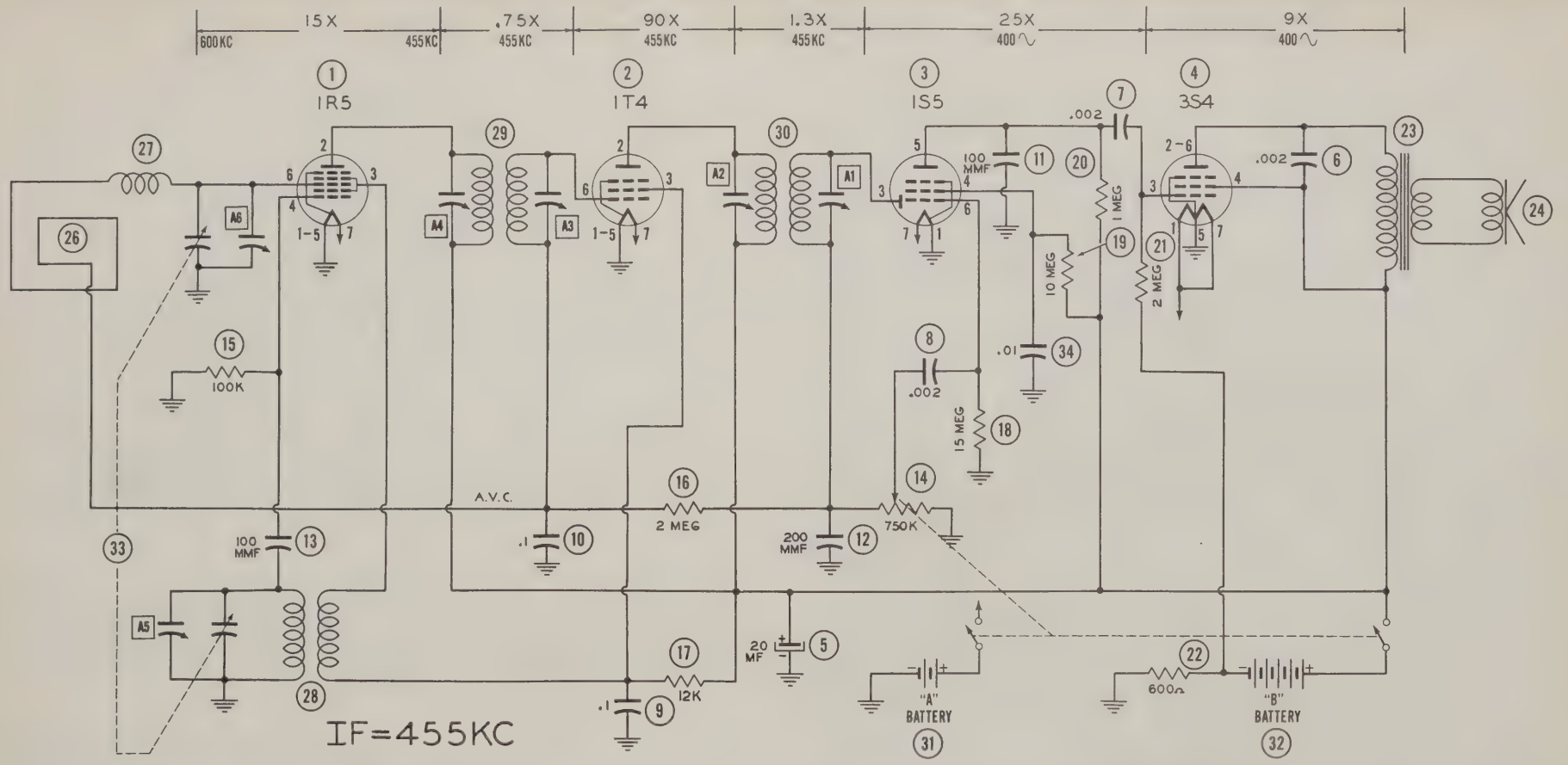
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



AUTOMATIC MODEL "TOM BOY" BATTERY OPERATED

DATE 10/47 SET #27 FOLDER #4717-4



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	55VDC	35VDC	-2.4VDC§	0V.	0V.	1.4VDC
2	1T4	0V.	55VDC	35VDC	-.1VDC	0V.	0V.	1.4VDC
3	1S5	0V.	-.1VDC	-.1VDC	12VDC	32VDC	-.1VDC	1.4VDC
4	3S4	1.4VDC	52VDC	-.8VDC	55VDC	0V.	52VDC	1.4VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0Ω	50KΩ	62KΩ	110KΩ	0Ω	3 Meg.	*
2	1T4	0Ω	50KΩ	62KΩ	750KΩ	0Ω	3 Meg.	*
3	1S5	0Ω	750KΩ	750KΩ	10 Meg.	1 Meg.	15 Meg.	*
4	3S4	*	50KΩ	2 Meg.	50KΩ	0Ω	50KΩ	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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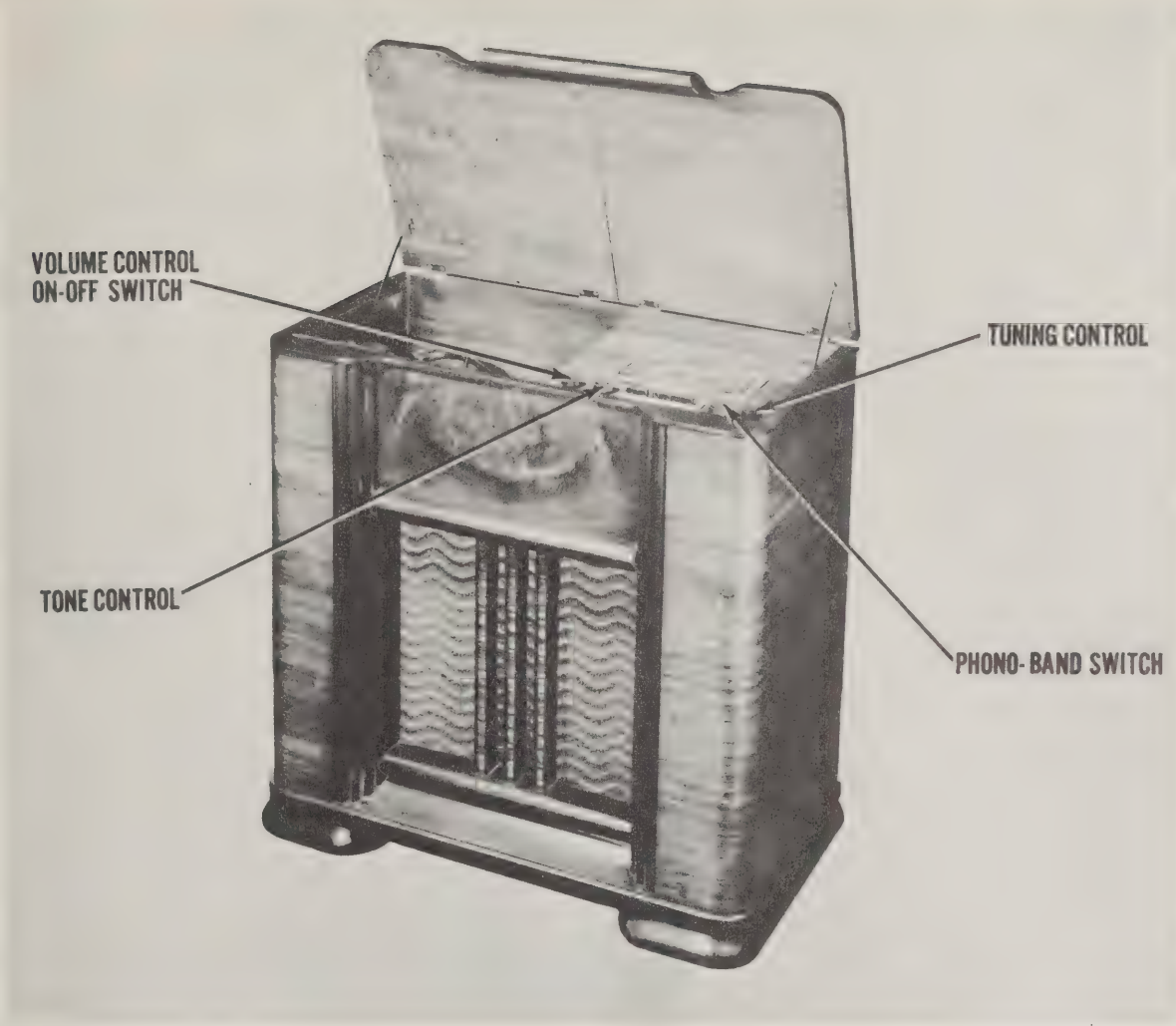
4717-4

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC shorted to chassis during stage gain measurements.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.



TRADE NAME	Bendix, Model 847-B
MANUFACTURER	Bendix Radio Div., Bendix Aviation Corp., Baltimore 4, Md.
TYPE SET	AC Operated FM-AM Radio-Phono Combination Superheterodyne with Loop Antenna
TUBES (EIGHT)	Types, 6AG5 FM RF Amp., 7F8 Converter, 7AH7 1st IF Amp., 7AG7 2nd IF Amp., 6H6 FM Det., 6SQ7 AM Det.-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC
RATING	.540 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	540 - 1620KC FM 88 - 108MC

BENDIX
MODEL 847-B

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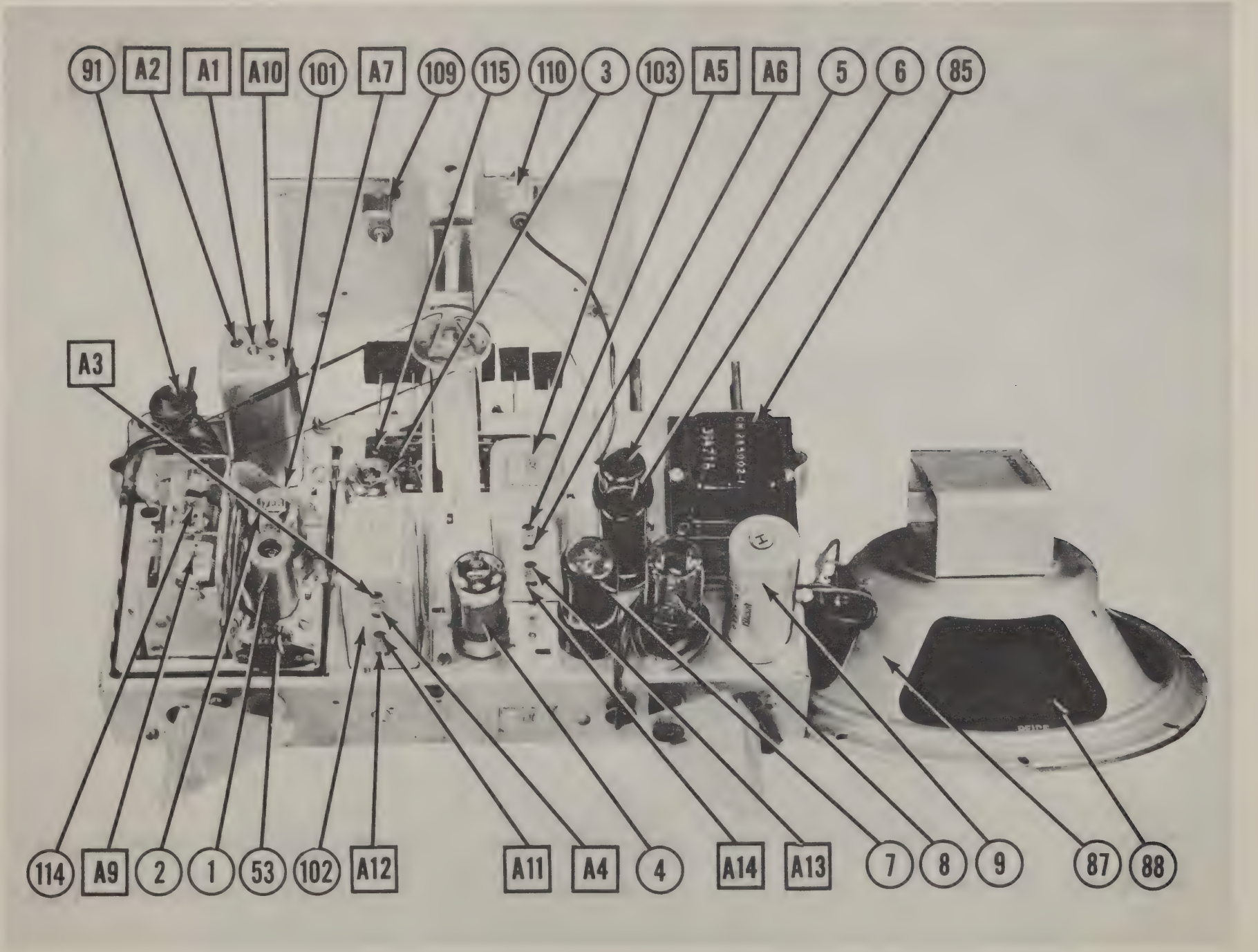
DATE 10/47 SET #27 FOLDER #4710-5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A2
A1
A10
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A7
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A5
A6
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2
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A11
A4
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A14
A13
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8
9
87
88

A17
A16
A8
A15
B10
B9
B8
B7
B6
B5
B4
B3
B2
B1

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: BENDIX PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	FM RF Amp.	6AG5	6AG5	7BD	
2	Converter	7F8	7F8	8BW	
3	1st IF Amp.	7AH7	7AH7	8V	
4	2nd IF Amp.	7AG7	7AG7	8V	
5	FM Det.	6H6	6H6	7Q	
6	AM Det.-AVC-AF	6SQ7	6SQ7	8Q	
7	Power Output	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: BENDIX PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	20	450		FP444‡	DY-3x20-450	EL-420‡	AF444J	UP3DJ56‡	◓ Filter
B	20	450	CE3A01						■ "
C	20	450							▲ "
10	25	25	CE1T00	TC26	M-25-25	TA-25	PRS25-25	BR252A	Output Cathode Bypass
11	25	25	CE1T00	TC26	M-25-25	TA-25	PRS25-25	BR252A	Ratio Detector Bias
12	3	50	CE1T02	TC40	M-4-150	TA-55	PRS150-4	BR550	" " "
13	.006	600	CP6T20	TP409	S-6-006	TC-26	684-006	DT6D6	Output Plate Bypass
14	.006	600	CP6T20	TP409	S-6-006	TC-26	684-006	DT6D6	Audio Coupling
15	.05	400	CP4T40	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Plate Decoup.
16	.01	400	CP4T31	TP421	S-4-01	TC-11	484-01	DT4S1	Tone Compensation
17	.002	600	CP6T12	TP405	S-6-002	TC-22	684-002	DT6D2	" "
18	.006	600	CP6T20	TP409	S-6-006	TC-26	684-006	DT6D6	Audio Coupling
19	.006	600	CP6T20	TP409	S-6-006	TC-26	684-006	DT6D6	" "
20	.001	200	CP2M10	TP404	S-6-001	TC-21	484-001	DT6D1	RF Bypass
21	.001	200	CP2M10	TP404	S-6-001	TC-21	484-001	DT6D1	Diode Load Capacitor
22	.001	200	CP2M10	TP404	S-6-001	TC-21	484-001	DT6D1	" " "
23	.001	200	CP2M10	TP404	S-6-001	TC-21	484-001	DT6D1	Test Jack Bypass
24	.05	400	CP4T40	TP426	S-4-05	TC-15	484-05	DT4S5	RF Bypass Power Supply
25	.05	400	CP4T40	TP426	S-4-05	TC-15	484-05	DT4S5	2nd IF Decoupling
26	.05	400	CP4T40	TP426	S-4-05	TC-15	484-05	DT4S5	2nd IF Cathode Bypass
27	.05	400	CP4T40	TP426	S-4-05	TC-15	484-05	DT4S5	1st IF Decoupling
28	.05	400	CP4T40	TP426	S-4-05	TC-15	484-05	DT4S5	Decoupling
29	.01	600	CP6T31	TP410	S-6-01	TC-11	684-01	DT6S1	AVC Network
30	.02	400	CP4M34	TP423	S-4-02	TC-12	484-02	DT4S2	" "
31	.005	600	CP6T18	TP408	S-6-005	TC-25	684-005	DT6D5	Line Bypass
32	.005	600	CP6T18	TP408	S-6-005	TC-25	684-005	DT6D5	" "
33	.01	600	CP6T31	TP410	S-6-01	TC-11	684-01	DT6S1	Filament Bypass
34	100	500	CM5A22	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	" "
35	220	500	CM5A30	MC240	MO.5-322	1FM-325	1468-00025	5W5T25	FM AVC Bypass
36	680	300	CM4A42						De-emphasis
37	680	300	CM4A42						" "
38	4.7	500	CC0F18	MC205	MO.5-55	MS-55	1468-000005	5W5V5	Mixer Plate Bypass Cer.
39	45	500	CC8A30	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	" " " "
40	220	500	CM5A30	MC240	MO.5-322	1FM-325	1468-00025	5W5T25	AF Plate Bypass
41	680	300	CM4L42						Osc. Coupling
42	220	500	CM5L30	MC240	MO.5-322	1FM-325	1468-00025	5W5T25	RF Coupling
43	100	500	CM5L22	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Bypass
44	220	500	CM5L30	MC240	MO.5-322	1FM-325	1468-00025	5W5T25	Osc. Feedback
45	15	500	CM5L03						" "
46	15	500	CC8A24						RF Coupling Cer.
47	680	300	CM4A42						RF Screen Bypass
48	45	500	CC8A30	MC225	MO.5-45	1FM-45	1468-00025	5W5Q5	RF Coupling Cer.
115	470	500	CM8S50						Fixed Trimmer PB

‡Omit last section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BENDIX PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
49A	2 Meg.	½	RV4S10	MRT451	D18-139X	T-116	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 49A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
50A	4 Meg.	½	RV4C00	UC505	D11-141	M-68-Z	Tone Control-Early production
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 50A per instructions
50A	10 Meg.	½		UC505	D11-143	M-88-Z	Tone Control-Later production
B	Shaft			Not Req.	A	Not Req.	Attach to 50A per instructions

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: BENDIX PART No.	REPLACEMENT DATA: MEISSNER PART No.	
89	Loop Ant.		0Ω			
90	FM Ant.			ALOZ08		
91	AM Ant.Coil		1.8Ω	TR8B00		
92	FM Ant.Coil		0Ω	TR8F00		
93	FM RF Coil		0Ω	TR8P00		
94	AM Osc.Coil		3Ω	LO8B00	14-1040	
95	FM " "		0Ω	LO8F00		
96	PB " "		1Ω	LT0805		
97	" " "		1Ω	LT0805		
98	" " "		2Ω	LT0A04		
99	" " "		2Ω	LT0A04		
100	" " "		4Ω	LT0A03		
101A	AM Input IF		26Ω	TI0C06		Items 101A & 101B are in same can.
B	FM " "		.1Ω			
102A	AM Inter IF	9Ω§	9Ω‡	TI0100		Items 102A & 102B are in same can.
B	FM " "					
103A	AM OutputIF	13Ω§		TI0D08		Items 103A & 103B are in same can.
B	FM Disc.		.1Ω			
104	RF Choke		.1Ω	LF0A01		
105	" "		.1Ω			
106	" "		.1Ω	LF0C00		
107	" "		.1Ω			
108	" "		.1Ω	LF0A01		

§ Includes both pri.
‡ Includes both sec.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: BENDIX PART No.		INSTALLATION NOTES
109	Bayonet	6-8	0.15	Brown			Type 47
110	"	"	"	"			" "

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: BENDIX PART No.	REPLACEMENT DATA: ASTATIC PART No.	REMARKS
111		L-71-S	

MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
112	Switch	SR3G00	Function Selector
113	Pushbutton Assy.	SS6P00	
114	Tuning Capacitor	CV0D00	
A7	Trimmer	CT1A11	BC Osc. Padder 475-1000 MMF
A8	"	CT1C01	BC RF Adj. 4-75 MMF
A9	"	CT1A10	BC Ant. Adj. 4-75 MMF
A15	"	CT1A09	FM Osc. Adj. 3-13 MMF
A16	"	CT1C00	FM RF Adj. 2-20 MMF
A17	"	CT1C00	FM Ant. Adj. 2-20 MMF
	Dial Scale	DS0A19	FM
	Dial	DS0A20	BC

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	BENDIX PART No.	IRC PART No.	
51	1 Meg.	½	RC1H62	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
52	68KΩ	½	RC2H46	BTS-68K	Blue-Gray-Or. RF Screen Dropping
53	330Ω	½	RC1H18	BW-½-330	Or.-Or.-Br. Antenna Loading
54	6800Ω	½	RC2H34	BTS-6800	Blue-Gray-Red FM Oscillator Plate Load
55	68KΩ	½	RC2H46	BTS-68K	Blue-Gray-Or. AM Oscillator Plate Load
56	47KΩ	½	RC2H44	BTS-47K	Yl.-Vi.-Or. Mixer Plate Load
57	1800Ω	½	RC2G27	BTS-1800	Br.-Gray-Red Mixer Cathode
58	22KΩ	½	RC1H40	BTS-22K	Red-Red-Or. Oscillator Grid
59	1 Meg.	½	RC1H62	BTS-1 Meg.	Br.-Blk.-Grn. Mixer Grid
60	470Ω	½	RC1H20	BTS-470	Yl.-Vi.-Br. Decoupling
61	1000Ω	½	RC2H24	BTS-1000	Br.-Blk.-Red 1st IF Decoupling
62	10Ω	½	RC2H00	BW-½-10	Br.-Blk.-Blk. Parasitic Suppressor
63	47Ω	½	RC2H08	BW-½-47	Yl.-Vi.-Blk. 1st IF Cathode
64	1000Ω	½	RC2H24	BTS-1000	Br.-Blk.-Red 2nd IF Decoupling
65	220Ω	½	RC2H16	BW-½-220	Red-Red-Br. 2nd IF Cathode
66	220KΩ	½	RC1H54	BTS-220K	Red-Red-Yl. Diode Load
67	100KΩ	½	RC1H51	BTS-100K	Br.-Blk.-Yl. De-emphasis
68	220KΩ	½	RC1H54	BTS-220K	Red-Red-Yl. Ratio Detector Bias
69	1000Ω	½	RC2H24	BTS-1000	Br.-Blk.-Red Ratio Detector Bias
70	22KΩ	½	RC1H40	BTS-22K	Red-Red-Or. Ratio Detector Bias
71	33KΩ	½	RC1H42	BTS-33K	Or.-Or.-Or. Ratio Detector Bias
72	1000Ω	½	RC1H20	BTS-1000	Br.-Blk.-Red Series Test Jack
73	2.2 Meg.	½	RC1H66	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
74	1 Meg.	½	RC1H62	BTS-1 Meg.	Br.-Blk.-Grn. " "
75	100KΩ	½	RC1H51	BTS-100K	Br.-Blk.-Yl. AVC Network
76	100KΩ	½	RC1H51	BTS-100K	Br.-Blk.-Yl. AF Decoupling
77	220KΩ	½	RC1H54	BTS-220K	Red-Red-Yl. AF Plate Load
78	470KΩ	½	RC1H58	BTS-470K	Yl.-Vi.-Yl. Phono Shunt
79	100KΩ	½	RC1H51	BTS-100K	Br.-Blk.-Yl. Tone Compensation
80	10 Meg.	½	RC1H74	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
81	470KΩ	½	RC1H58	BTS-470K	Yl.-Vi.-Yl. Output Grid
82	270Ω	1	RW1B34	BW-1-270	Red-Vi.-Br. Output Cathode
83	1500Ω	2	RC4D26	BT-2-1500	Br.-Grn.-Red Filter
84	100Ω	2	RW2A12	BW-2-100	"

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	BENDIX PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
85	117V AC @ .54A	520V CT @ .068A	5.0V AC @ 2.0A	6.3V AC @ 2.1A	TP0J00	P-6011*	T22R02*	P-2951*

*Drill new mounting holes and add series resistor to reduce plate voltage.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		BENDIX PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
86	5400Ω	4.3Ω	500Ω	.9Ω	TA0007	A-3877	T22S9C	A-2930	

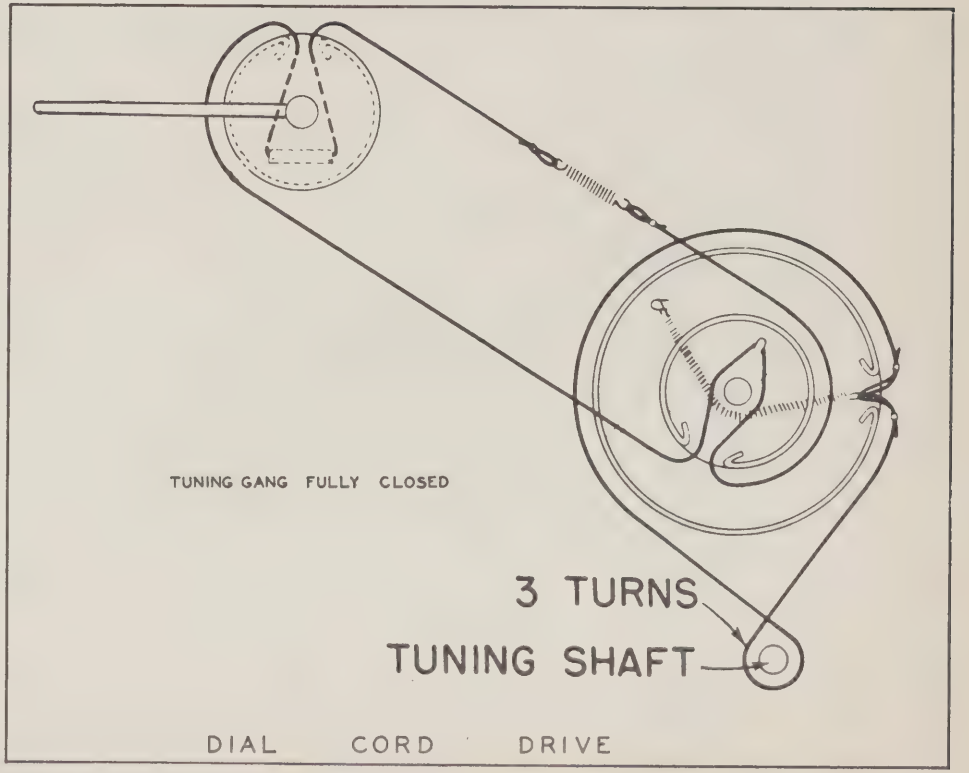
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			BENDIX PART No.	JENSEN PART No.		
87	FIELD	VC IMP.	SP0R00	ST-120† Mod. P10-S		†Replace output transformer to match 8Ω voice coil.
	PM	4.3Ω				
88	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			
	9½"	1"				

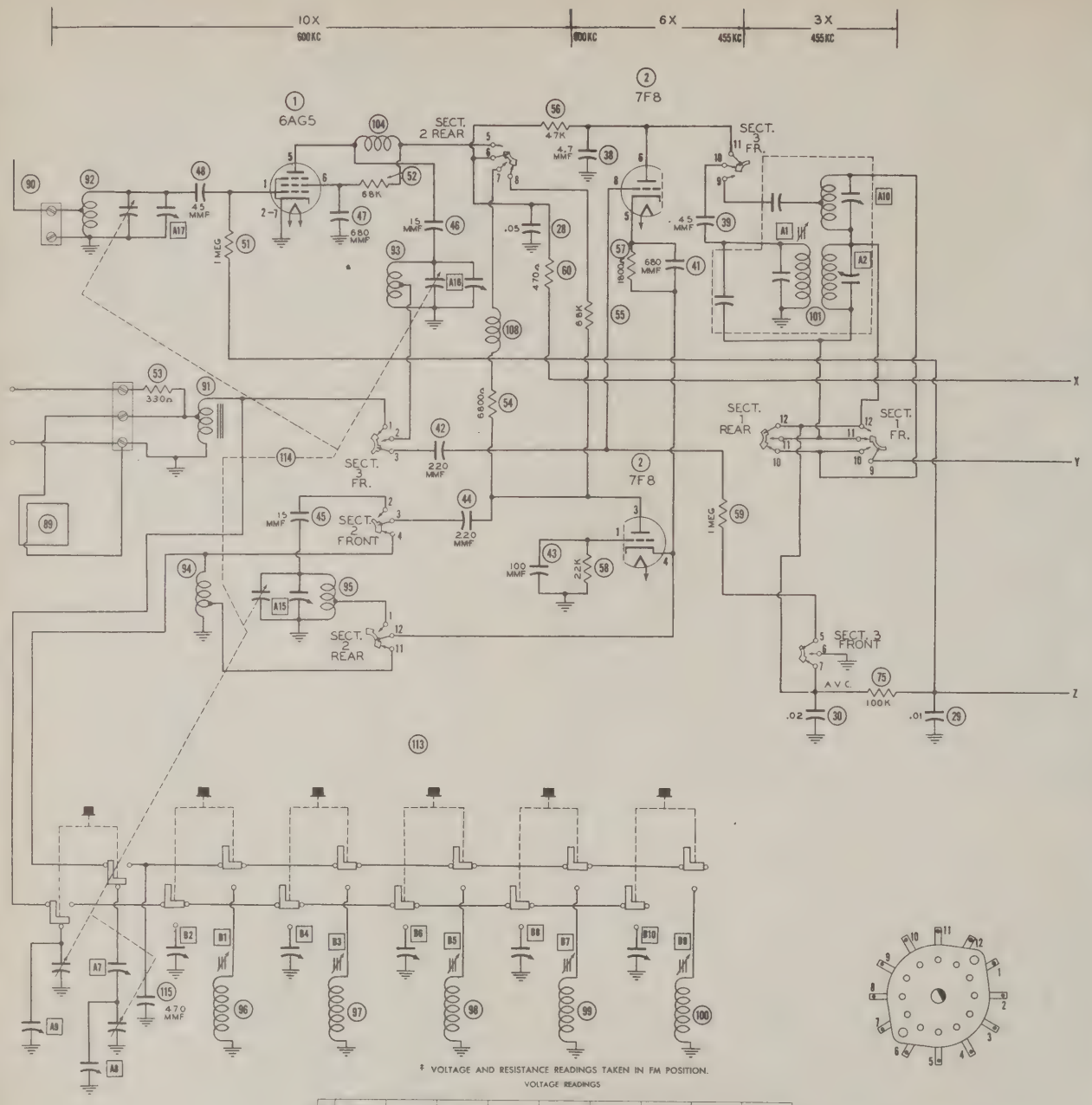
PUSHBUTTON ADJUSTMENTS

Range of pushbuttons ranging from right to left is: 1st button right is manual tuning button, 900-1550KC, 900-1550KC, 650-1250KC, 650-1250KC, 540-925KC.

1. Make a list of stations desired to be set up ranging from high to low frequency making certain that each station falls within the range of the button to be used.
2. Turn receiver on and allow it to warm up for about 15 minutes.
3. Turn band switch to AM position (center position) and remove buttons by pulling out.
4. Push in the first button shaft from the right and manually tune in first station on your list.
5. Push in 2nd button shaft and adjust B1 to tune in station. Check to ascertain whether you have the correct station by alternately pushing in the manual button shaft and then the button shaft which you are setting up.
6. Adjust B2 for maximum volume.
7. To set up the remaining buttons follow the same procedure outline above adjusting B3, B5, B7 & B9 to tune in stations and B4, B6, B8 & B10 for maximum volume.
8. Replace buttons.



DATE 10/47 SET #27 FOLDER #4710-5



BAND PHONO SWITCH SHOWN IN AM POSITION.

FRONT SECTIONS VIEWED FROM FRONT.
REAR SECTIONS VIEWED FROM REAR.

SWITCH SEQUENCE:
1 FM
2 AM
3 PHONO

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡ 1	6AG5	-.7VDC	0V.	0V.	6.3VAC	213VDC	210VDC	0V.	-
2	7F8	-3.9VDC§	0V.	76VDC	0V.	3.8VDC	133VDC	63VAC	-.7VDC
3	7AH7	6.3VAC	240VDC	240VDC	0V.	0V.	-.3VDC	.5VDC	0V.
4	7AV7	6.3VAC	240VDC	240VDC	0V.	0V.	0V.	1.6VDC	0V.
‡ 5	6H6	0V.	6.3VAC	16VDC	16VDC	16VDC	17VDC	0V.	16VDC
6	6BQ7	0V.	-.5VDC	0V.	-.3VDC	-.4VDC	105VDC	6.3VAC	0V.
7	6V6GT	0V.	6.3VAC	260VDC	240VDC	0V.	0V.	0V.	12VDC
8	5Y3GT	0V.	280VDC	200VDC	260VAC	0V.	260VAC	0V.	296VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡ 1	6AG5	3 Meg.	0Ω	0Ω	.1Ω	150KΩ	220KΩ	0Ω	-
2	7F8	2.2KΩ	.1Ω	225KΩ	1Ω	1.8KΩ	200KΩ	.2Ω	2.5 Meg.
3	7AH7	.1Ω	150KΩ	150KΩ	0Ω	0Ω	1.3 Meg.	0Ω	0Ω
4	7AV7	.1Ω	150KΩ	150KΩ	0Ω	0Ω	9Ω	220Ω	0Ω
‡ 5	6H6	0Ω	.1Ω	60KΩ	INF.	INF.	22KΩ	0Ω	22KΩ
6	6BQ7	0Ω	10 Meg.	0Ω	2.2 Meg.	250KΩ	470KΩ	.1Ω	0Ω
7	6V6GT	0Ω	.1Ω	150KΩ	150KΩ	510KΩ	INF.	0Ω	270Ω
8	5Y3GT	0Ω	150KΩ	250KΩ	165Ω	INF.	165Ω	.8Ω	190KΩ

IF=455KC (AM)

IF=10.7MC (FM)

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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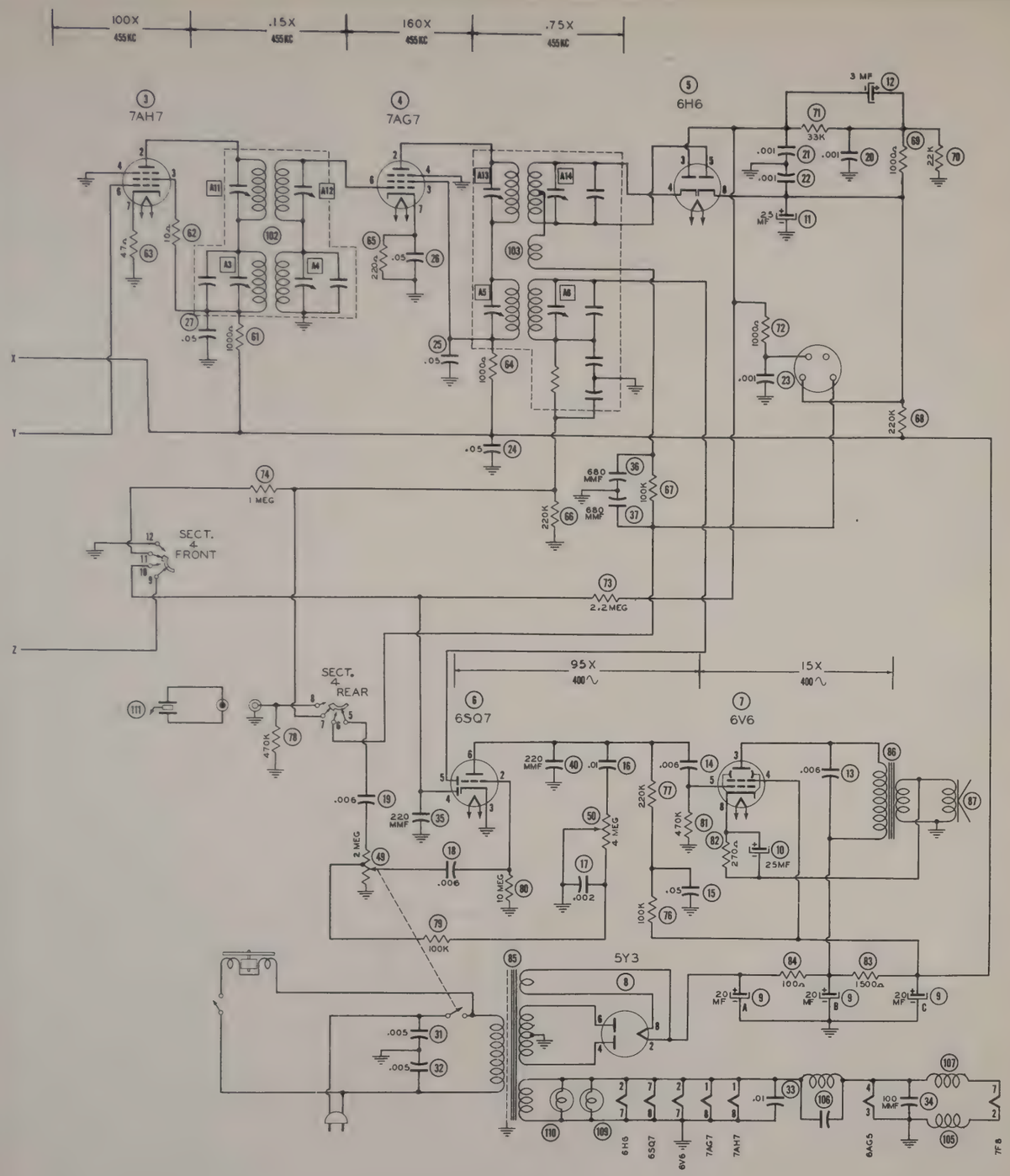

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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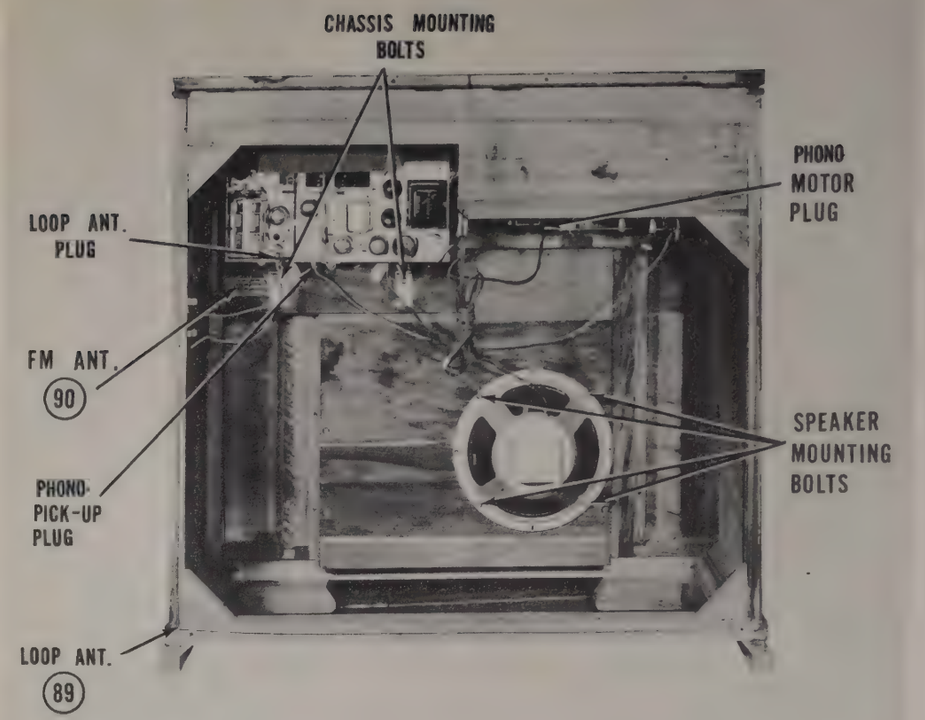


DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove loop antenna plug from chassis.
3. Remove speaker plug from chassis.
4. Remove phono-pickup plug from chassis.
5. Remove phono-motor plug from socket under record changer.
6. Remove FM antenna lead from chassis.
7. Remove nine screws holding chassis in cabinet. Remove chassis from cabinet.
8. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05 MFD.	High side to rear "AM" stator of tuning cap. Low side to chassis.	455KC	BC (center position)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4, A5,A6.	Adjust for maximum output.
2	Connect 3.7micro henry choke from blk wire to chassis.	High side through .01 MFD. cap. to white wire of ant. loop socket. Low side to chassis.	580KC	"	580KC ref- erence dot at low freq. and of dial.	"	A7	"
3	"	"	1475KC	"	1475KC ref- erence dot at high freq and of dial.	"	A8,A9.	"
4	"	"	580KC	"	Tune for maxi- mum output.	"	A7	Rock tuning cap. and ad- just for maximum output. Repeat Steps 3 and 4 un- til no further increase in output can be ob- tained.
5	"	"	965KC	"	"	"	"	Check calibration.
6	"	"	580KC	"	"	"	"	Check calibration. If cal- ibration is not within 10KC oscillator and ant. gang rotors must be bent.

FM ALIGNMENT (Using FM Signal Generator & Oscilloscope)

7	.05 MFD.	High side to cen- ter FM stator of tuning cap. Low side to chassis.	10.7MC (unmodulat- ed)	FM Tuning cap. fully open.	DC probe of VTVM connected to Pin 1 (white lead) of FM test socket. Common to Pin 2 junc- tion of resistor (72) & cap (23).	A10,A11 A12, A13	Connect a short from front of tuning cap. to chassis. Adjust front FM stator of tuning for maximum deflection.	
8	.05 MFD.	"	Approx. 10.7MC (Freq.mod- ulated 60 ~ sweep with 300 KC devia- tion). Adjust sig- nal gen. until curve of Fig. 1 is centered on hori- zontal scope sweep line	"	High side of osci- lloscope to FM test socket. Common to Pin 4 (orange lead) of FM test socket. Low side to chassis.	A14	Adjust for maximum sym- metry, per curve of Fig. 1. It may be necessary to adjust alternately A13 and A14 to obtain best possible curve.	
9	FM dummy ant. (See FMD notes)	High side to .01 MFD cap. of dummy ant. Low side to chassis.	106MC (freq.mod. 60~ sweep with 300KC deviation)	"	106MC refer- ence line at high freq. end of dial.	"	A15	Remove short from FM sta- tor from Step 7 and ad- just until "S" curve is centered on horizontal for image by tuning sig. scope sweep line. Check for maximum deflec- tion. to 84.6MC. If signal is adjusted correctly. If signal is not heard then A15 is adjusted until signal is heard return signal gen. to 106MC and loosen trimmer until next peak is obtained. Then adjust until "S" curve is centered on horizontal scope sweep line and re- check for image.
10	"	"	"	"	"	"	"	"
11	"	"	97MC	"	"	"	"	Tune until "S" curve is centered on scope.
12	"	"	90MC	"	"	"	"	FM Osc. Check calibration. If calibration is not within (95) RF & reasonable tolerance at 90 and 97MC adjust coils (93) & (92) per preal ignment notes. If coils must be adjusted then steps 9 & 10 must be repeated.

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

13	.01 MFD.	High side to cap ter FM stator of tuning cap. Low side to chassis.	10.7MC (unmodula- ted)	FM Tuning cap. fully open.	DC probe of VTVM connected to Pin 1 (white lead) of FM test socket. Common to Pin 2 junc- tion of resistor (72) and cap (23).	A10,A11 A12,A13	Connect short from front tuning cap. FM stator for tuning adjust for maximum de- flection in order given and repeat.	
14	.01 MFD.	"	"	"	"	"	"	If available use zero center scale VTVM. Adjust for zero deflection. Re- peat Step 13 adjusting A13 only for maximum and Step 14 adjusting A14 for zero deflection several times to assure correct alignment.
15	See pre- ment notes.	High side to .01 MFD. cap of dum- my. Low side to chassis.	106MC (amplitude modulation)	"	106MC re- erence line at high freq end of dial. DC probe of VTVM connected to Pin 1 (white lead) of FM test socket. Common to Pin 2 junction of resis- tors(72) and cap (23). High side to Pin 4 (orange lead) of FM test socket. Low side of VTVM to junction of the 2 100K resistors.	A15	Remove short from FM sta- tor of Step 13. Adjust for maximum deflection. Check for image as in Step 9.	
16	"	"	"	"	Tune for max- imum defle c- tion.	"	Rock tuning cap and ad- just for maximum deflec- tion.	
17	"	"	97MC	"	"	"	A16, A17.	
18	"	"	90MC	"	"	"	FM Osc.	Check calibration at 90 (95) RF and 97MC. If calibration (93) & is not within reasonable tolerance adjust FM coils (92) per preal ignment instruc- tions. If coils must be adjusted, then repeat steps 15 and 16.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
10	"	"	"	"	"	"	A16,A17	Rock tuning cap. to keep "S" curve centered on horizontal scope sweep line while adjusting A16 and A17 for maximum height of curve.
11	"	"	97MC	"	Tune until "S" curve is centered on scope.	"		Check calibration.
12	"	"	90MC	"	"	"	FM Osc	Check calibration. If calibration is not within (95) & reasonable tolerance at 90 and 97MC adjust coils (93) & (92) per preal ignment notes. If coils must be adjusted then steps 9 & 10 must be repeated.
13	.01 MFD.	High side to cap ter FM stator of tuning cap. Low side to chassis.	10.7MC (unmodula- ted)	FM Tuning cap. fully open.	DC probe of VTVM connected to Pin 1 (white lead) of FM test socket. Common to Pin 2 junc- tion of resistor (72) and cap (23).	A10,A11 A12,A13	Connect short from front tuning cap. FM stator of tuning adjust for maximum de- flection in order given and repeat.	
14	.01 MFD.	"	"	"	"	"	"	If available use zero center scale VTVM. Adjust for zero deflection. Re- peat Step 13 adjusting A13 only for maximum and Step 14 adjusting A14 for zero deflection several times to assure correct alignment.
15	See pre- ment notes.	High side to .01 MFD. cap of dum- my. Low side to chassis.	106MC (amplitude modulation)	"	106MC re- erence line at high freq end of dial. DC probe of VTVM connected to Pin 1 (white lead) of FM test socket. Common to Pin 2 junction of resis- tors(72) and cap (23). High side of VTVM to junction of the 2 100K re- sistors. High side to Pin 4 (orange lead) of FM test socket.	A15	Remove short from FM sta- tor of Step 13. Adjust for maximum deflection. Check for image as in Step 9.	
16	"	"	"	"	Tune for max- imum defle c- tion.	"	Rock tuning cap and ad- just for maximum deflec- tion.	
17	"	"	97MC	"	"	"	A16, A17.	
18	"	"	90MC	"	"	"	FM Osc.	Check calibration at 90 (95) RF and 97MC. If calibration (93) & is not within reasonable tolerance adjust FM coils (92) per preal ignment instruc- tions. If coils must be adjusted, then repeat steps 15 and 16.

BENDIX PAGE 9
MODEL 847-B

FIGURE 1

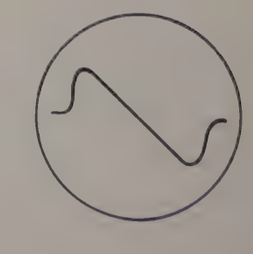


FIGURE 2

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap.fully closed and set pointer to last mark after #55 on low freq. end of dial.

Calibration marks are on outer edge of dial. AM marks are dots and FM marks are lines. 580KC dot is near the #60, while the 90MC line is 3/8" from the 580KC dot. The 1475KC dot is opposite the #140, while the 106MC line is 3/4" from the 1475KC dot.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

FM dummy ant. consists of 300Ω resistor in series with 30Ω resistor with a .01 MFD cap. connected to junction of the 300Ω and 30Ω resistor. The 300Ω resistor is connected to ungrounded terminal of the FM ant. terminal strip. The 30Ω resistor is connected to grounded terminal (left hand terminal) of FM ant. terminal strip. The 30Ω resistor may be varied to match the output impedance of signal generator.

The VTVM used in FM alignment must be AC-DC, or with ground connected to AC line or through a resistor.

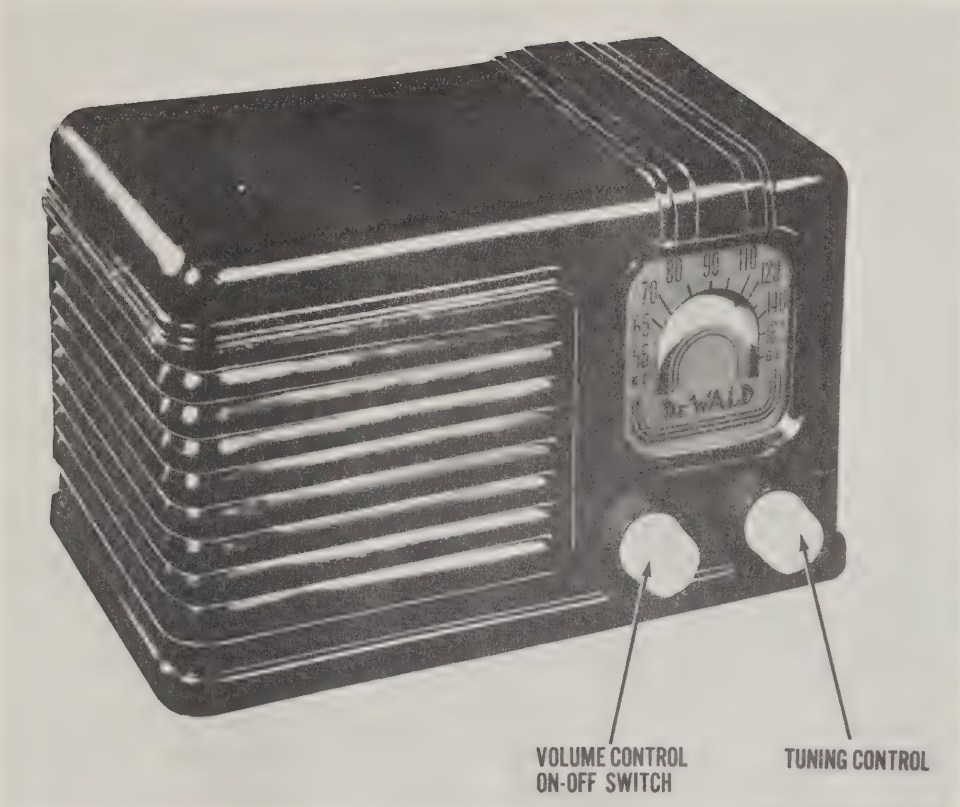
On FM alignment with oscilloscope the scope horizontal sync. voltage may be taken from power line if six. generator does not have a sync. voltage output. There may be some phase shift encountered between six. Generator and scope horizontal sweep resulting in a double trace pattern per Figure 2. If provision is made for this in the scope rotate phase control until the two curves coincide as in Figure 1. If no provision is made for this the same thing may be accomplished by inserting a cap. of suitable value (.01 to .1 MFD) in series with the horizontal sweep input.

The 2 100KΩ resistors used in Step 14 should be within 1% of each other.

In Steps 11, 12, 17 and 18 if calibration is off use following procedure for checking and adjusting inductance of coils. Tune to calibration mark, connect VTVM to AVC as in Step 7, insert iron core end of tuning wand into osc. coil. If deflection of meter increases compress coil slightly. If deflection decreases insert brass end in osc. coil. If deflection increases spread turns slightly. Coil is adjusted correctly when upon insertion of either end of tuning wand there is a decrease in deflection of meter. Adjust RF and Ant. coils in same manner. After coils have been adjusted repeat alignment of RF trimmers (Steps 9, 10, 15 and 16).

DATE 10/47 SET #27 FOLDER #4710-5

DEWALD MODEL A-514



DEWALD MODEL A-514

DEWALD MODEL A-514

TRADE NAME	Dewald, Model A-514
MANUFACTURER	Dewald Radio Mfg. Corp., 35-28 49th St., Long Island City 1, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1735KC
RATING	220 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1735KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1500KC	Tune for maximum output.	"	A5	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

DEWALD MODEL A-514

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DEWALD PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150		2N513	DSB-2x30-150	TA-330	PRSA-150-30-30	EZ3315	Filter - Red
B	30	150							" - Yellow
7	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
8	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
9	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	"
10	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	AVC Filter
11	.02	400		TP423	MPH-4-02	TC-12	484-02	DT4S2	Line Filter
12	100			MC235	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass Cer.
13	220			MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Diode RF Filter Cer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DEWALD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
14A	500KΩ	½	3002-1	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 14A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

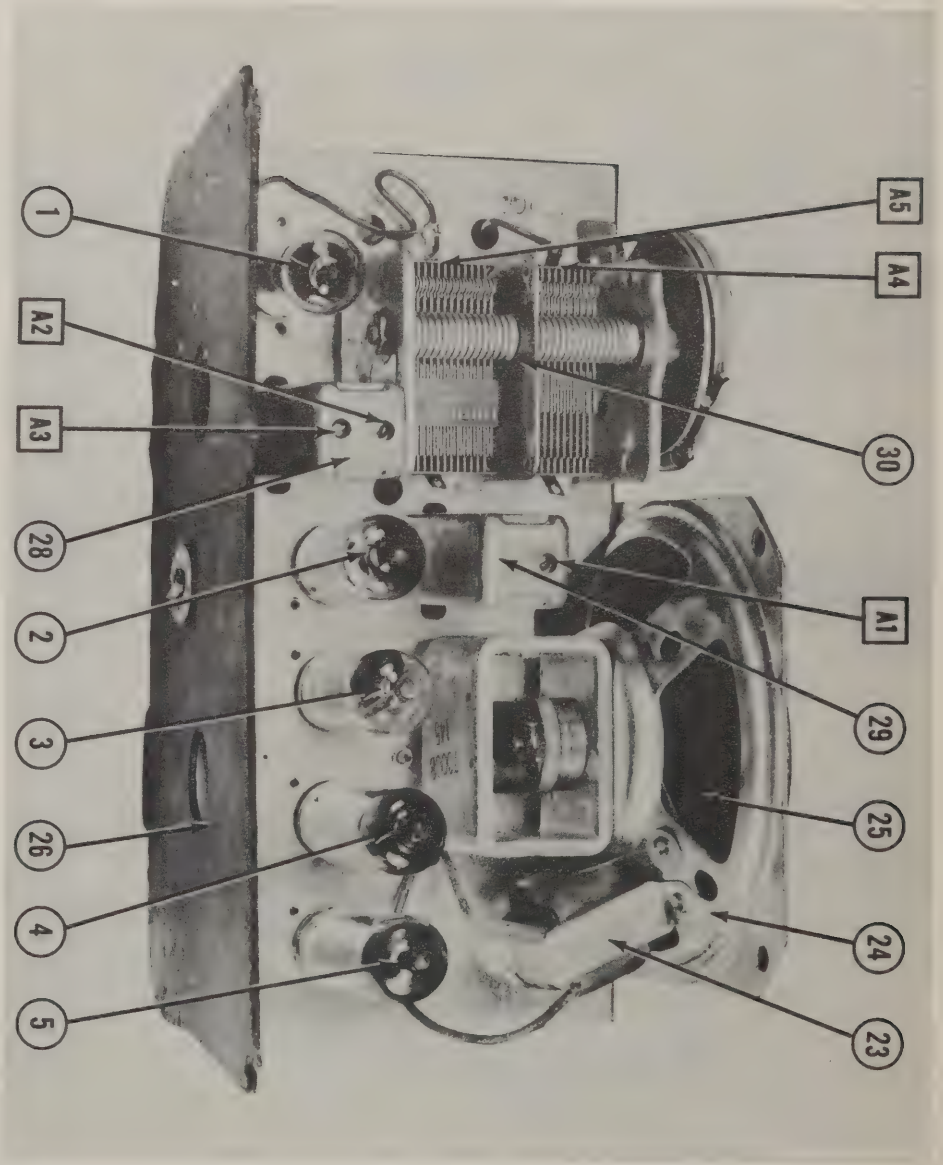
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DEWALD PART No.	IRC PART No.	IDENTIFICATION CODES
15	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
16	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
17	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Diode RF Filter
18	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
19	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
20	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
21	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
22	1500Ω	1		BTA-1500	Br.-Grn.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: DEWALD PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
23	3300Ω	4.0Ω	330Ω	.9Ω		A-3876*	T22846*	A-2928*	*Drill new mounting holes and mount on chassis.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

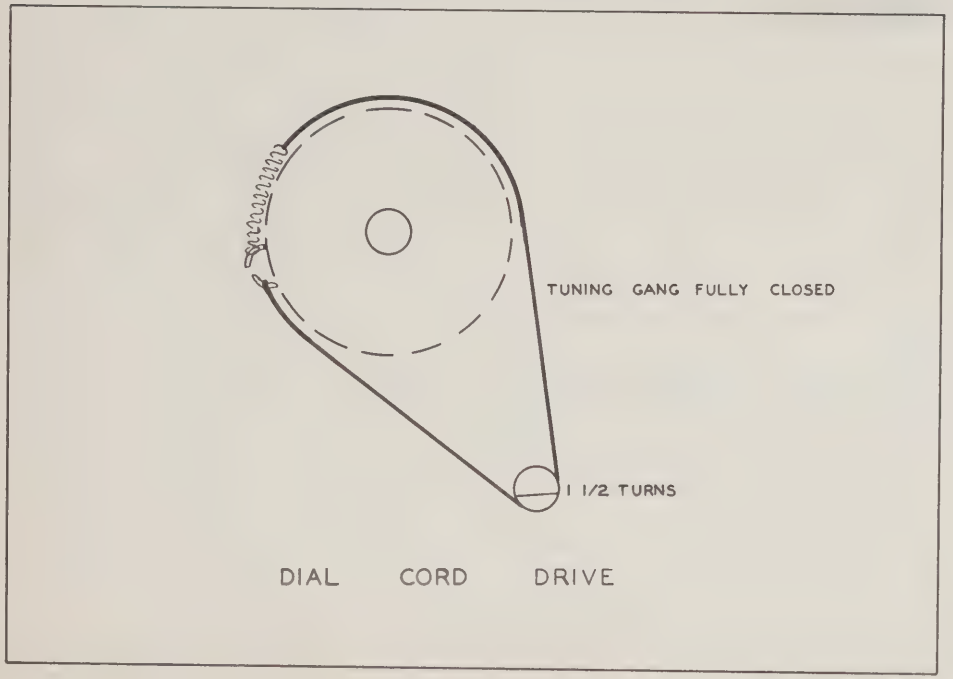
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			DEWALD PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
24	PM	4.0Ω	7000			
	CONE DIA.	VC DIA.				
25	3-15/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

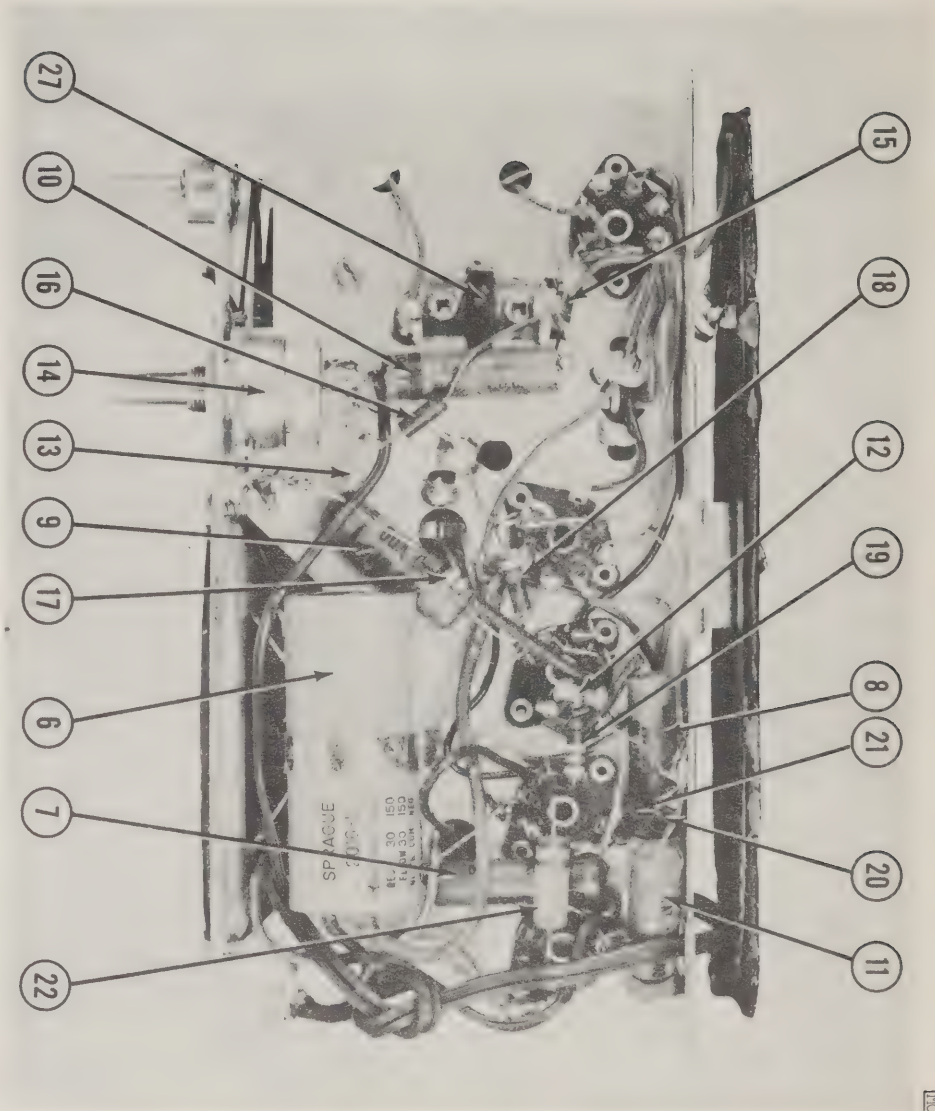
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	DEWALD PART No.	MEISSNER PART No.	
26	Loop Ant.		3Ω			
27	Osc. Coil		6.5Ω		14-1040	Add 50 MMFD from grid to high side of tuning cap.
28	Input IF	32Ω	30Ω		16-6668	
29	Output IF	34Ω				

MISCELLANEOUS

ITEM No.	PART NAME	DEWALD PART No.	NOTES
30	2 Gang Var. Cap.		36-470 MMF, 34-197 MMF

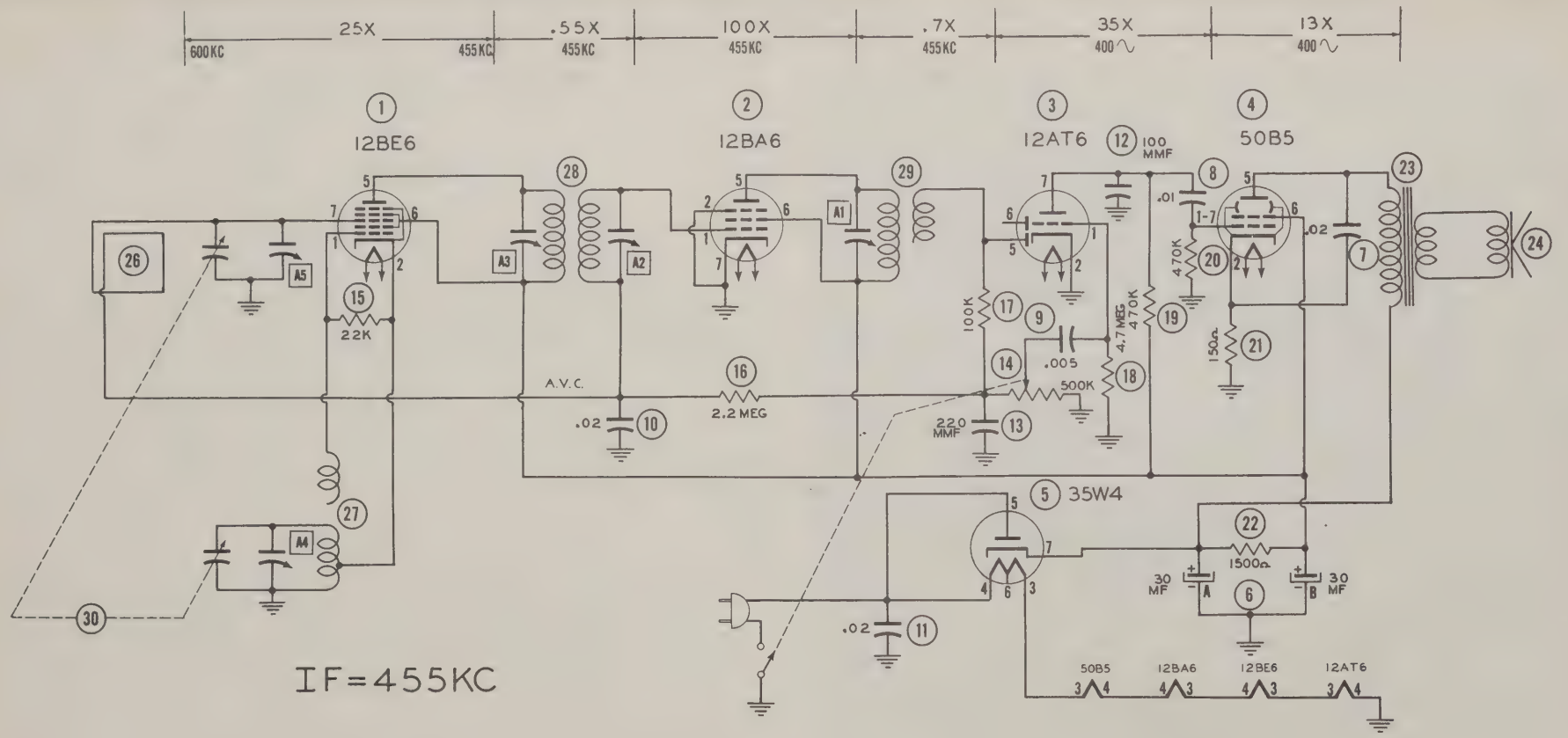


CHASSIS—BOTTOM VIEW



DATE 10/47 SET #27 FOLDER #4717-6

DEWALD MODEL A-514



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-13VDC§	0V.	12VAC	24VAC	90VDC	90VDC	-.5VDC
2	12BA6	-.5VDC	0V.	24VAC	36VAC	90VDC	90VDC	0V.
3	12AT6	-.6VDC	0V.	12VAC	0V.	-.5VDC	0V.	40VDC
4	50B5	0V.	5.3VDC	82VAC	36VAC	118VDC	90VDC	0V.
5	35W4	0V.	0V.	82VAC	117VAC	117VAC	110VAC	128VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	22KΩ	.7Ω	12Ω	25Ω	80KΩ	80KΩ	2.7 Meg.
2	12BA6	2.7 Meg.	0Ω	25Ω	36Ω	80KΩ	80KΩ	0Ω
3	12AT6	5 Meg.	0Ω	12Ω	0Ω	550KΩ	INF.	550KΩ
4	50B5	470KΩ	150Ω	85Ω	36Ω	80KΩ	80KΩ	470KΩ
5	35W4	INF.	INF.	85Ω	120Ω	120Ω	110Ω	80KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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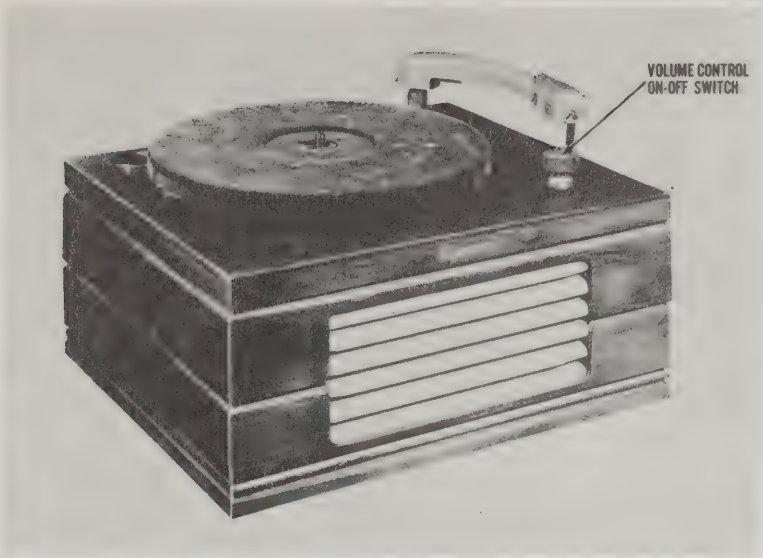
4717-6

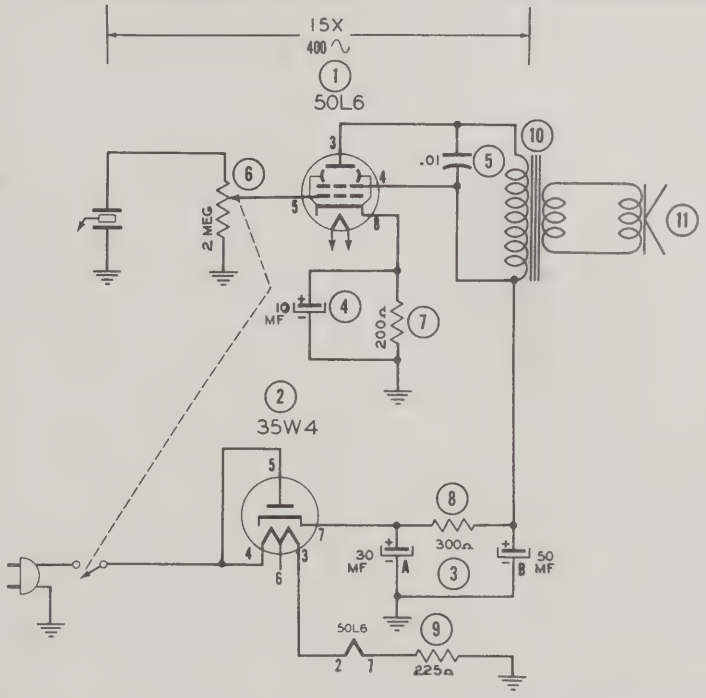
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



DYNAVOX MODEL "SWINGMASTER"

TRADE NAME	Dynavox, Model "Swingmaster"
MANUFACTURER	Dynavox Corp., 40-35 21st St., Long Island City, N.Y.
TYPE SET	AC Operated Phonograph with 2 Tube Amplifier & Speaker
TUBES (TWO)	Types, 50L6GT Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .230 Amp. @ 117 Volts AC



Pin No.	50L6GT Volt.	Res.
1	0V.	INF.
2	85VAC	240Ω
3	111VDC	60KΩ
4	118VDC	60KΩ
5	0V.	2 Meg.
6	0V.	INF.
7	34VAC	210Ω
8	8.6VDC	200Ω

Pin No.	35W4 Volt.	Res.
1	0V.	INF.
2	0V.	INF.
3	85VAC	240Ω
4	117VAC	260Ω
5	117VAC	260Ω
6	110VAC	255Ω
7	132VDC	60KΩ
8	-	-

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4717-7

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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DATE 10/47 SET #27 FOLDER #4717-7

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		DYNAVOX PART No.	STANDARD REPLACEMENT		
1	Power Output	50L6GT	50L6GT	7AC	
2	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	DYNAVOX PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
3A	30	150		2N520	DSB-5030-150	TA-530	PRSA150-30-50	BRD3515	Filter - Red
B	50	150							" - Green
4	10	50		TC32	M-10-50	TA-510	PRSA50-10	BR105	Cathode Bypass
5	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	DYNAVOX PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
6A	2 Meg.	½		MR55	D13-139	M-66-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 6A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	DYNAVOX PART No.	IRC PART No.	
7	200Ω	½		BW-½-220	Red-Blk.-Br. Output Cathode
8	300Ω	1		BW-1-330	Or.-Blk.-Br. Filter
9	230Ω	5		ABA-250	Red-Or.-Br. Line Dropping-See Note

Note - On IRC replacement set slider at 230Ω from one end.

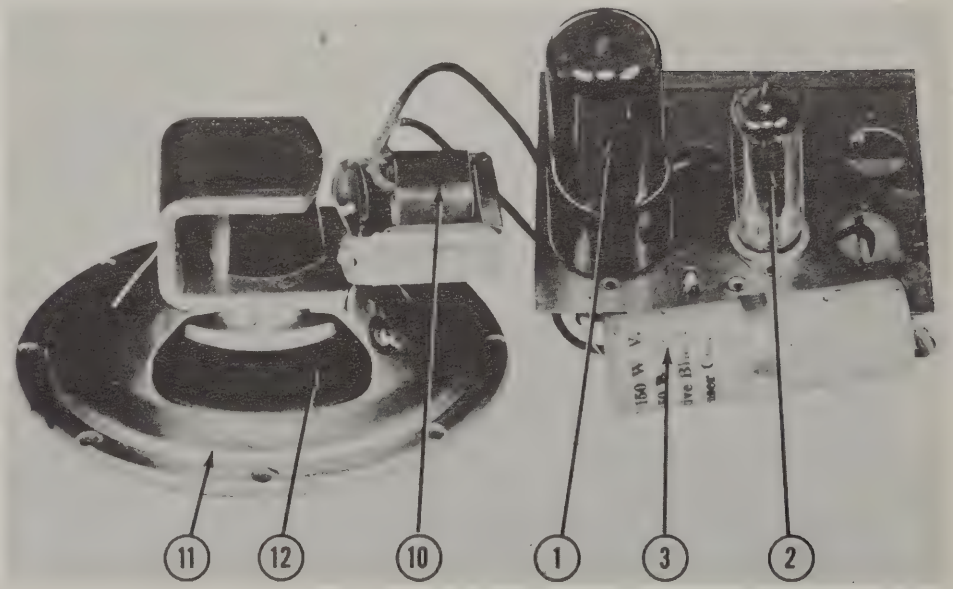
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		DYNAVOX PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
10	2150Ω	3.7Ω	170Ω	.7Ω		A-3876*	T22S45*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

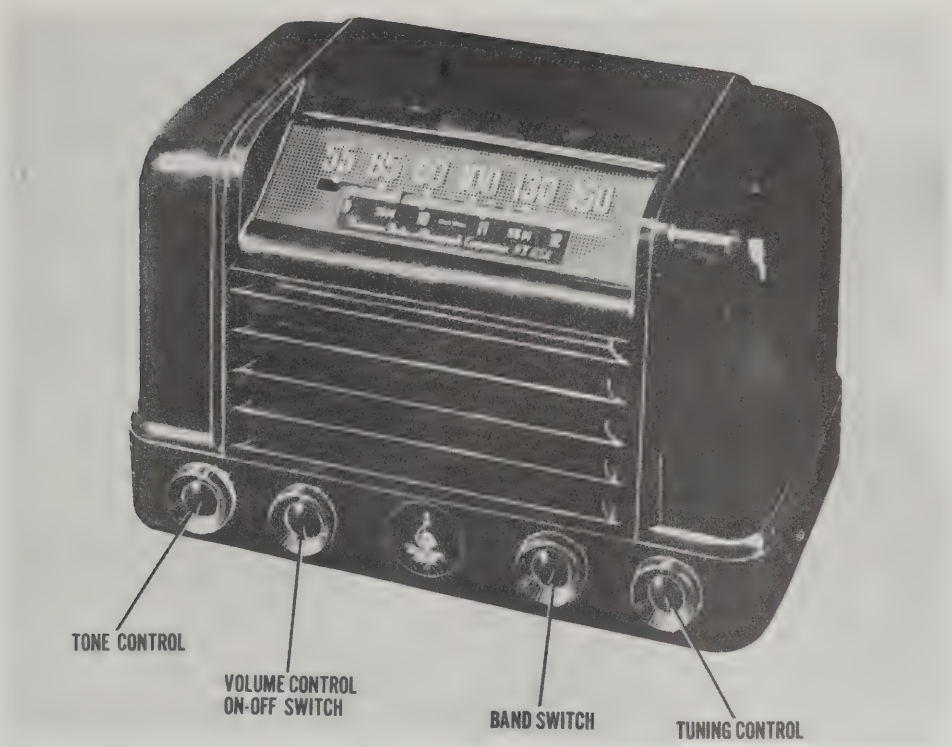
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			DYNAVOX PART No.	JENSEN PART No.		
11	FIELD	VC IMP.		ST-107		
	PM	3.7Ω		Mod. P5-V		
12	CONE DIA.	VC DIA.	CONE HAS SPECIAL ADJUSTMENT FEATURE - ORDER FROM MANUFACTURER			
	4-3/4"	1/2"				

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW

EMERSON MODELS
514, 534, (Ch. 120007)



EMERSON MODELS
514, 534, (Ch. 120007)

EMERSON MODEL 514

TRADE NAME	Emerson, Models 514, 534 (Ch. 120007)
MANUFACTURER	Emerson Radio & Phono Corp., 111 Eighth Ave., New York, N.Y.
TYPE SET	AC-DC Operated 2 Band Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SG7 Mixer, 6SS7 Oscillator, 6SS7 IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC — RATING .250 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC — **SHORT WAVE** 8.8 - 12.2 MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer 1-3/16" from left edge of dial backplate. Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 4 (grid) of 12SG7. Low side to B-.	455KC	BC (clock-wise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	400Ω carbon res.	High side to ext. ant. lead. Low side to B-.	12MC	SW (counter clock-wise)	5-5/8" from left edge of dial backplate.	"	A5	Adjust for maximum output
3	"	"	"	"	"	"	A6	Rock tuning cap. and adjust for maximum output.
4		Loop	1600KC	BC	6" from left edge of dial backplate.	"	A7,A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
5		"	600KC	"	Tune for maximum output.	"		This step is only necessary if the loop has been replaced. Adjust the free half turn of the loop to either side of the center of the loop for maximum output. Repeat Step 4.

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DATE 10/47 SET #27 FOLDER #4717-8

PARTS LIST AND DESCRIPTIONS

EMERSON MODELS
[illegible]

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mixer	12SG7	12SG7	8BK	
2	Oscillator	6SS7	6SS7	8N	
3	IF Amp.	6SS7	6SS7	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	6Q	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	925012	2N521	DSB-2x50-150	TA-505	PRSA150-50-50	EZ5515	Filter - Red
B	50	150							" - Green
8	.05	400	920030	TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
9	.2	200	920050	TP429	S-4-2	TC-2	484-2	DT4P2	Line Isolation
10	.02	400	920020	TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
11	.03	400	920190	TP424	S-6-03	TC-13	484-03	DT4S3	RF Bypass Pwr. Supply
12	.002	600	920010	TP405	S-6-002	TC-22	684-002	DT6D2	Tone Comp.
13	.02	400	920020	TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
14	.002	600	920010	TP405	S-6-002	TC-22	684-002	DT6D2	" "
15	.1	200	920040	TP428	S-4-1	TC-1	484-1	DT4P1	AVC Filter
16	.02	400	920020	TP423	S-4-02	TC-12	484-02	DT4S2	Mixer Screen Bypass
17	.05	200	920060	TP426	S-4-05	TC-15	484-05	DT4S5	Mixer Plate Decoup.
18	.002	600	920010	TP405	S-6-002	TC-22	684-002	DT6D2	Ext. Ant. Coup.
19	220	500	910000	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
20	110	500	910010	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode Filter
21	360	500	910160	MC243	MO.5-34	1FM-34	1468-0004	5W5T4	Osc. Grid
22	200	500	910000	MC240	MO.5-32	1FM-32	1468-0002	5W5T2	RF Coupling
23	460	500	910080	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	Fixed Pad.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
24A	500KΩ	½	390190	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 24A per instruction
C	Switch		" "	M26	41	SW-A	" " " " "
25A	400KΩ	½	390280	MK401	D13-133	AM-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 25A per instruction

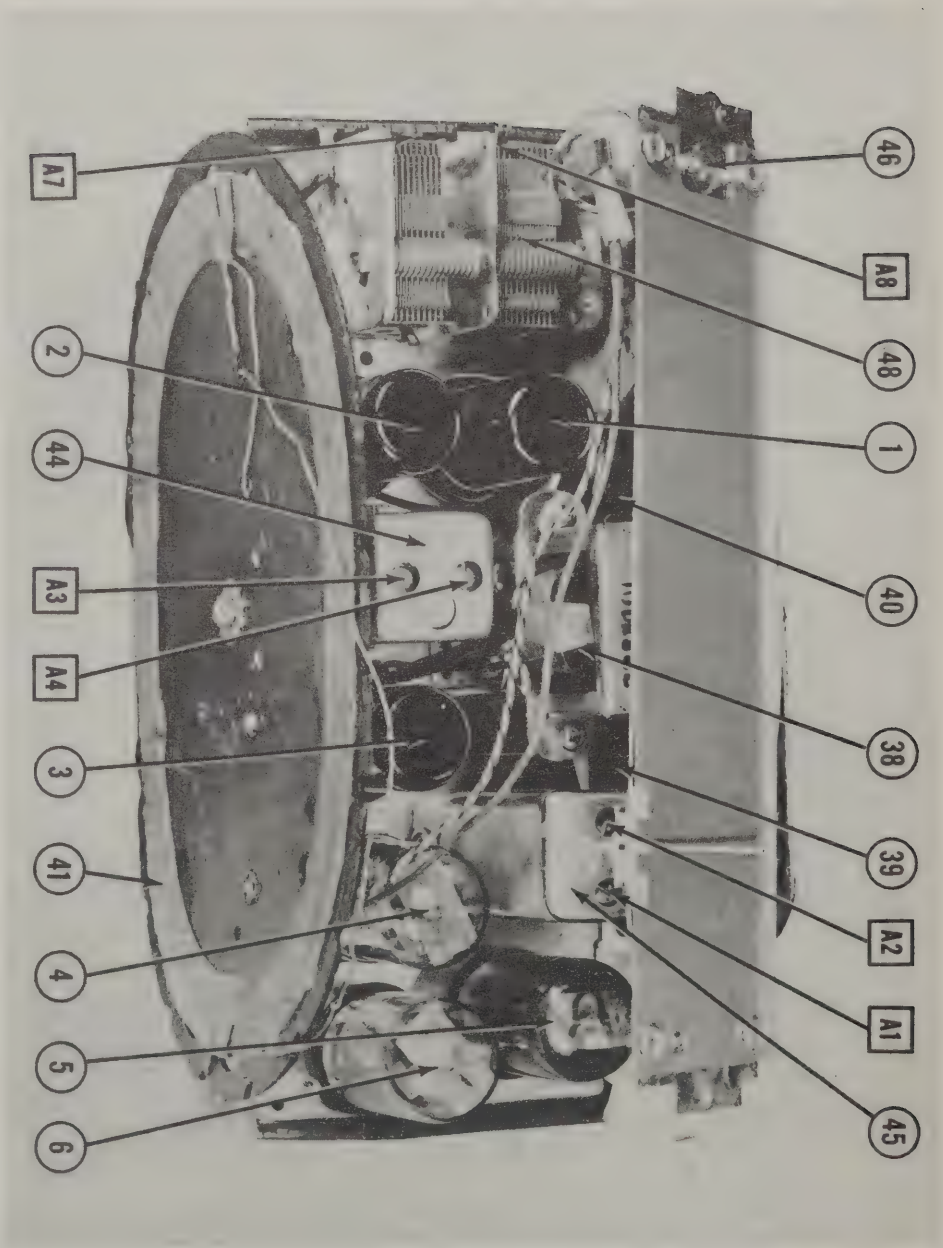
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
26	470KΩ	¼	321130	BTS-470K	Yl.-Vi.-Yl. Mixer Grid
27	47KΩ	¼	310890	BTS-47K	Yl.-Vi.-Or. Mixer Screen Dropping
28	4700Ω	¼	310650	BTS-4700	Yl.-Vi.-Red Mixer Plate Decoupling
29	22KΩ	¼	310810	BTS-22K	Red-Red-Or. Oscillator Grid
30	3.3 Meg.	¼	321330	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
31	15 Meg.	¼	397000	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
32	470KΩ	¼	321130	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
33	150Ω	¼	340290	BW-½-150	Br.-Grn.-Br. Output Cathode
34	1000Ω	1	370490	BTA-1000	Br.-Blk.-Red Filter
35	15Ω	½	340050	BW-½-15	Br.-Grn.-Blk. Rectifier Ballast
36	220KΩ	¼	321050	BTS-220K	Red-Red-Yl. Line Isolation
37	10Ω	½	340010	BW-½-10	Br.-Blk.-Blk. Series Pilot Light

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
38	2100Ω	4.6Ω	204Ω tapped @ 9Ω	.7Ω	734100	A-3876*		A-2928*	*Add extra filter to reduce hum level.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: EMERSON PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
39	PM	4.6Ω	180008			
	CONE DIA.	VC DIA.				
40	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

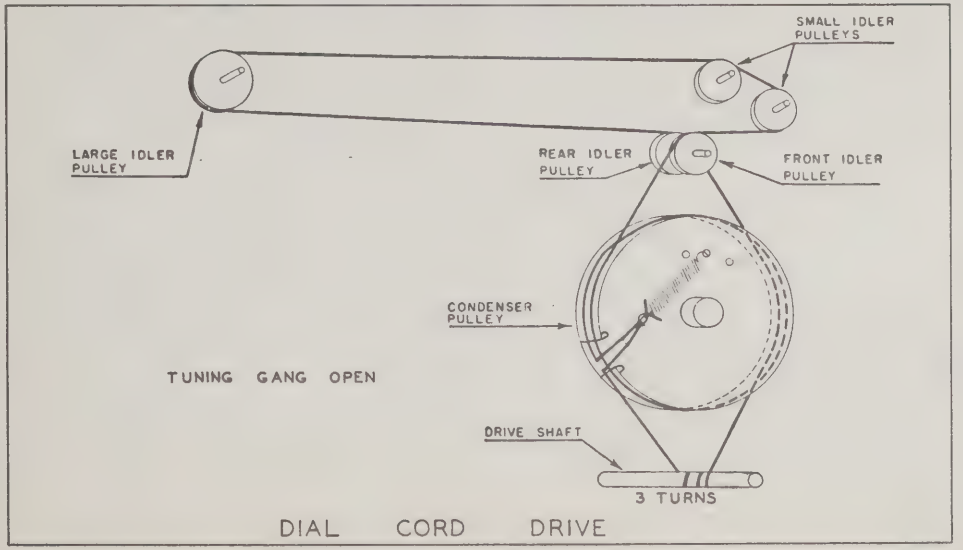
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	MEISSNER PART No.	
41	Loop Ant.	.1Ω	3Ω	700130		
42	SW Ant.Coil	0Ω-0Ω	0Ω	710010		
43A	BC Osc.Coil	1.5Ω	6.5Ω	716100		Items 43A & 43B are wound on same form
B	SW " "	.3Ω	0Ω			
44	Input IF	35Ω	23Ω	720400	16-6666	
45	Output IF	25Ω		720390		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: EMERSON PART No.		INSTALLATION NOTES
46	Bayonet	6-8	0.15	Brown	807000		Type 47

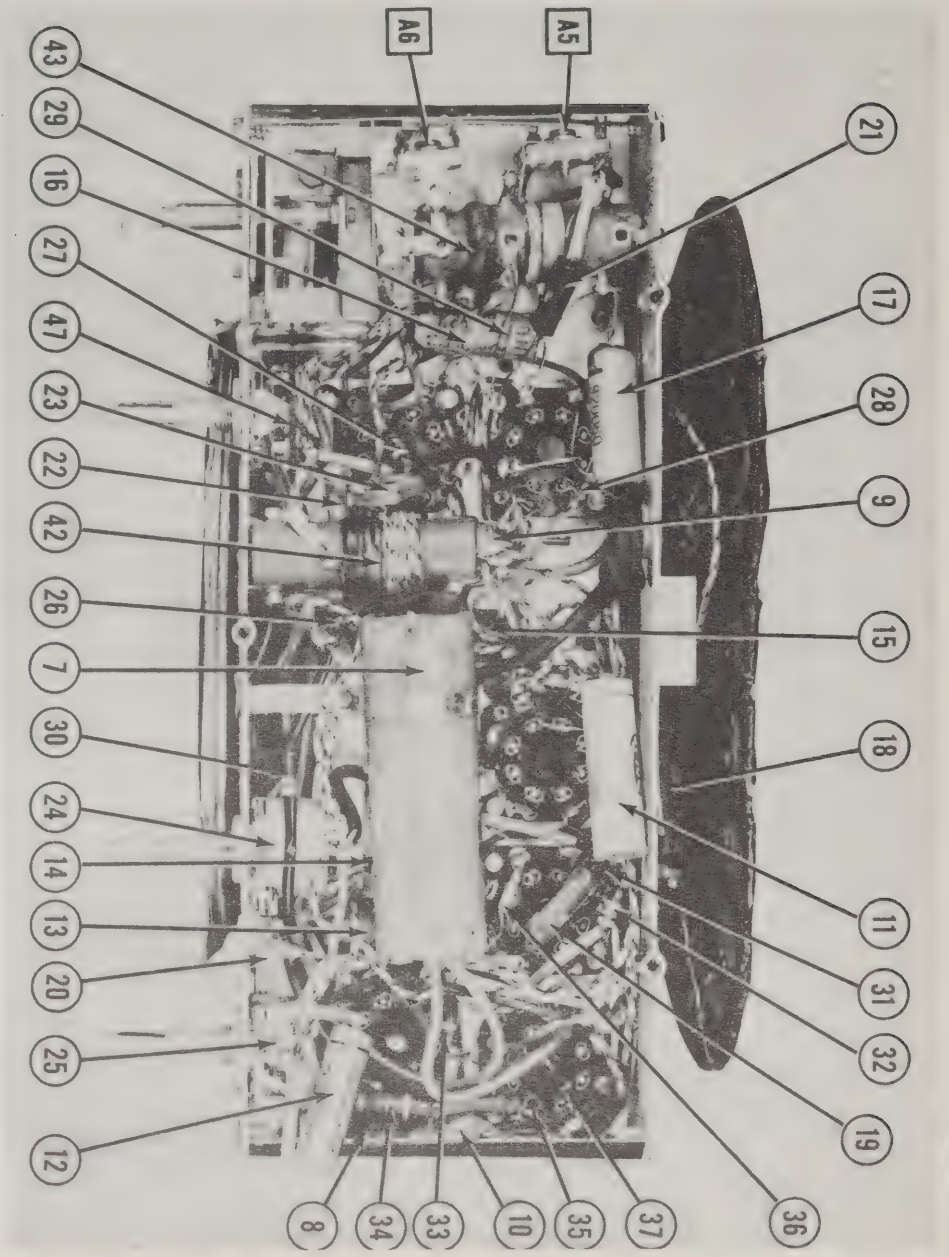
MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
47	Bandswitch	510330	
48	2 Gang Var. Cap	900270	25-382MMF, 27-193MMF
	Dial Glass	520460	
	Dial Pointer	525012	
	Cabinet	140104	Model 534
	"	140030	" 514
	Knob	560210	

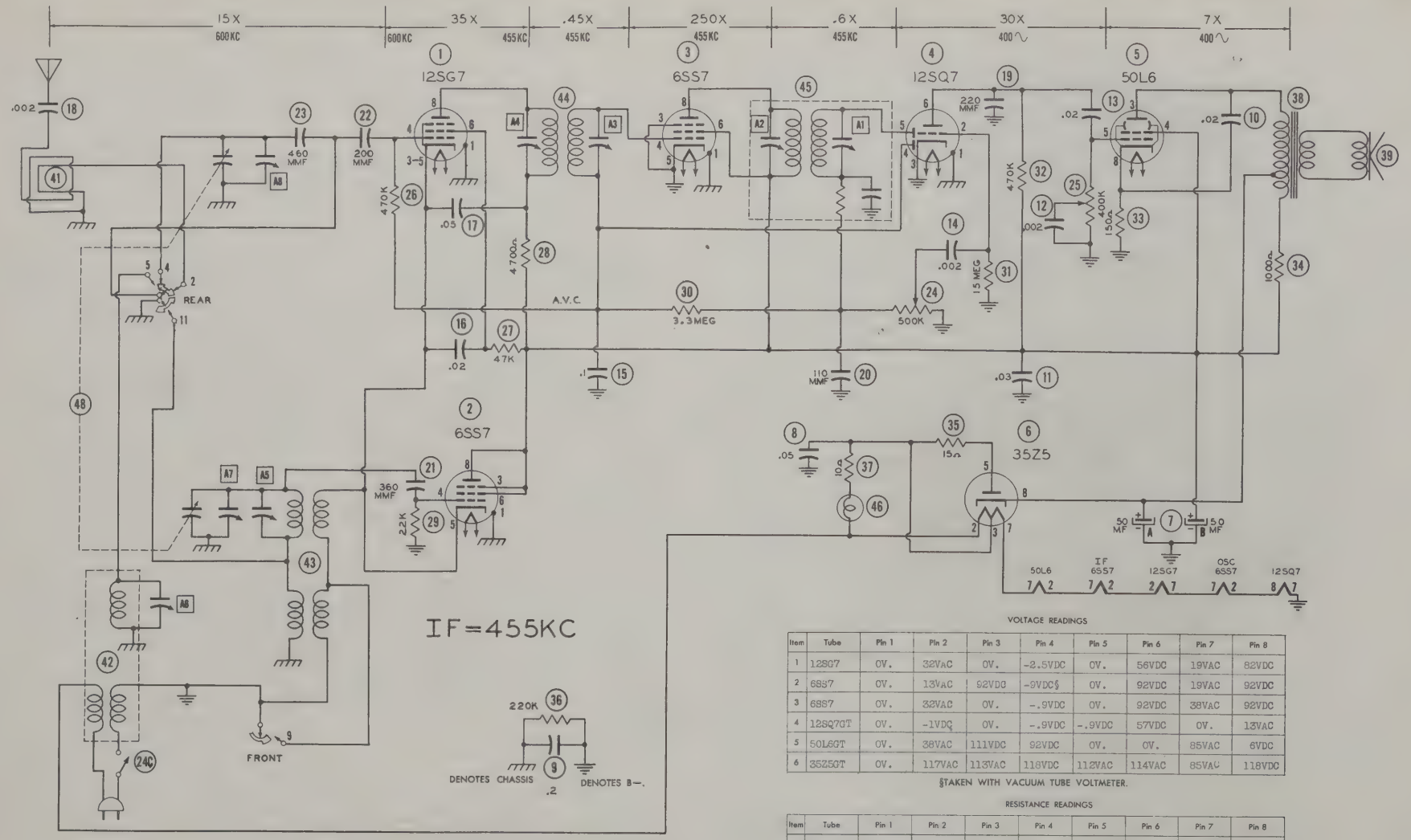


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



DATE 10/47 SET #27 FOLDER #4717-8



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SG7	0V.	32VAC	0V.	-2.5VDC	0V.	56VDC	19VAC	82VDC
2	6SS7	0V.	13VAC	92VDC	-9VDC§	0V.	92VDC	19VAC	92VDC
3	6SS7	0V.	32VAC	0V.	-.9VDC	0V.	92VDC	38VAC	92VDC
4	12SQ7GT	0V.	-1VDC	0V.	-.9VDC	-.9VDC	57VDC	0V.	13VAC
5	50L6GT	0V.	38VAC	111VDC	92VDC	0V.	0V.	85VAC	6VDC
6	35Z5GT	0V.	117VAC	113VAC	118VDC	112VAC	114VAC	85VAC	118VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SG7	230KΩ	32Ω	1.5Ω	4 Meg.	1.5Ω	100KΩ	20Ω	55KΩ
2	6SS7	230KΩ	13Ω	50KΩ	22KΩ	1.5Ω	50KΩ	20Ω	50KΩ
3	6SS7	230KΩ	32Ω	0Ω	3.5 Meg.	0Ω	50KΩ	40Ω	50KΩ
4	12SQ7GT	230KΩ	15 Meg.	0Ω	3.5 Meg.	500KΩ	520KΩ	0Ω	13Ω
5	50L6GT	INF.	40Ω	50KΩ	50KΩ	470KΩ	INF.	40Ω	1.5Ω
6	35Z5GT	INF.	120Ω	115Ω	50KΩ	130Ω	120Ω	40Ω	50KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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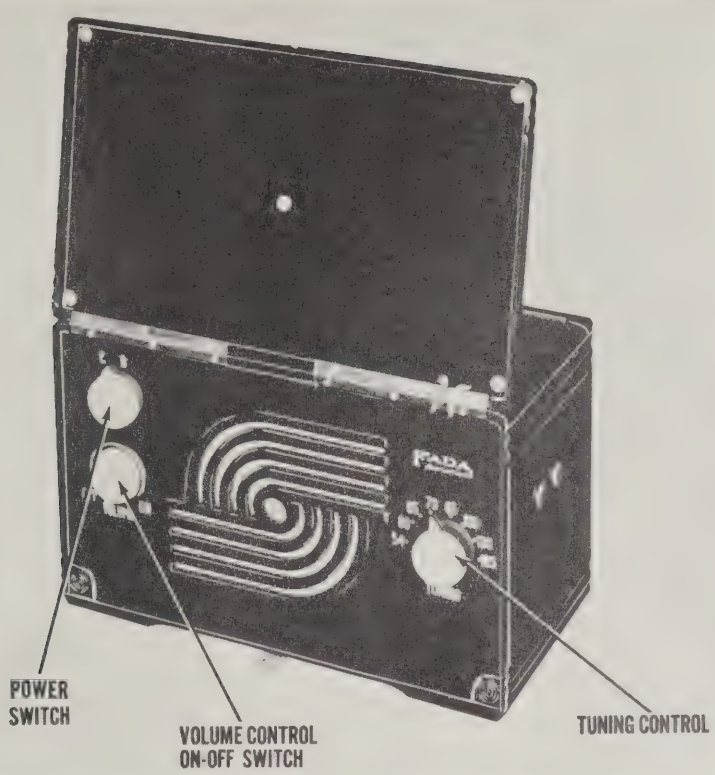
4717-8

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FADA MODEL P80
BATTERY OPERATED



FADA MODEL P80
BATTERY OPERATED

FADA MODEL P80

TRADE NAME	Fada, Model P80
MANUFACTURER	Fada Radio & Electric Co., Inc., Belleville, N.J.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF. Amp., 1S5 Det.-AVC-AF, 3S4 Power Output.
POWER SUPPLY RATING	110-120 Volts AC-DC or 1½ Volt "A" Supply & 67½ Volt "B" Supply .150 Amp. @ 117 Volts AC or 240MA @ 1.5 Volts DC & 11MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	538-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD. capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	456KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF to reduce hum modulation. Replace chassis in cabinet and connect loop.
2		Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Open front door as it is in playing position. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.
4		"	600KC	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 and 4 until no further improvement can be made.

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DATE 10/47 SET #27 FOLDER #4717-9

PARTS LIST AND DESCRIPTIONS

FADA MODEL P2C
BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FADA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	30	150	22.14	TCD48	DSB-2x30-150				Filter
B	40	150							" - Red
6	150	15	22.13						Filament Bypass
7	100	15	22.5	TC2501	M-100-15	UHC-115	PRS-25-100	BRH151	" "
8	.002	200	12.1	TP405	S-6-002	TC-22	484-002	DT6D2	Audio Coupling
9	.002	200	12.1	TP405	S-6-002	TC-22	484-002	DT6D2	" "
10	.1	200	12.13	TP428	S-4-1	TC-1	484-.1	DT4P1	AF Screen Bypass
11	.05	200	12.11	TP426	S-4-05	TC-15	484-05	DT4S5	Decoupling
12	.1	200	12.13	TP428	S-4-1	TC-1	484-.1	DT4P1	Filament Bypass
13	.05	200	12.11	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	.002	200	12.1	TP405	S-6-002	TC-22	484-002	DT4S5	Output Plate Bypass
15	.03	600	12.9	TP424	MPH-6-05	TC-13	684-03	DT6S3	Line Filter
16	50		17.18	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	AF Plate Bypass Cer.
17	220		17.17	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Diode RF Filter Cer.
18	100		17.23	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap. Cer.

CONTROLS

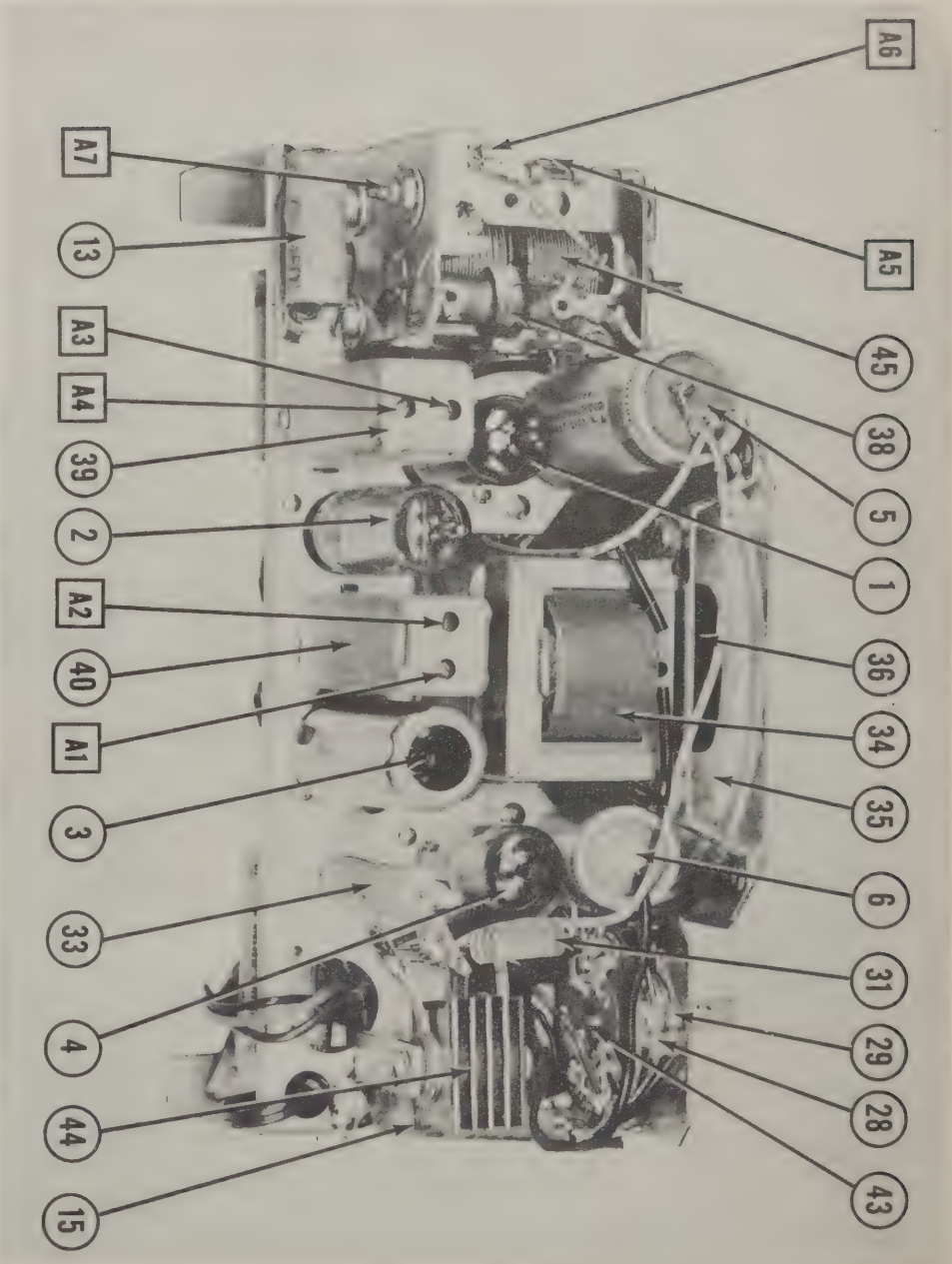
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	½	52.4	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch		" "	M23-24	45	SW-A4	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
20	100KΩ	½	32.17	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
21	3300Ω	½	32.32	BTS-3300	Or.-Or.-Red Screen Dropping
22	2.2 Meg.	½	32.34	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
23	6.8 Meg.	½	32.46	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
24	3.9 Meg.	½	32.36	BTS-3.9 Meg.	Or.-White-Grn. AF Screen Dropping
25	680KΩ	½	32.35	BTS-680K	Blue-Gray-Yl. AF Plate Load
26	2.2 Meg.	½	32.34	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
27	1000Ω	½	32.8	BTS-1000	Br.-Blk.-Red Filament String
28	680Ω	½	32.31	BTS-680	Blue-Gray-Br. " " - See Note 1
29	680Ω	½	32.31	BTS-680	Blue-Gray-Br. " "
30	560Ω	½	32.48	BTS-560	Grn.-Blue-Br. Bias
31	2200Ω	1	32.56	BTA-2200	Red-Red-Red Filter
32	2200Ω	½		BTS-2200	Red-Red-Red Filament String - See Note 2
33A	2225Ω	10	117.12	AB-2300	" "
B	75Ω			AB-75	Surge Limiter

Note 1-Some models use 1000Ω in this application. Replacement same as #27.
Note 2-Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FADA PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
34	4800Ω	3.4Ω	245Ω	1Ω	42.5	A-3877	T22S46	A-2930	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FADA PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
35	PM	3.4Ω	107.15			
	CONE DIA.	VC DIA.				
36	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	FADA PART No.	MEISSNER PART No.	
37	Loop Ant.		1.5Ω	37.12		
38	Osc. Coil	.5Ω	3Ω	37.13	14-1040	
39	Input IF	38Ω	38Ω	37.14	16-6668	
40	Output IF	38Ω	38Ω	37.14	16-6669	

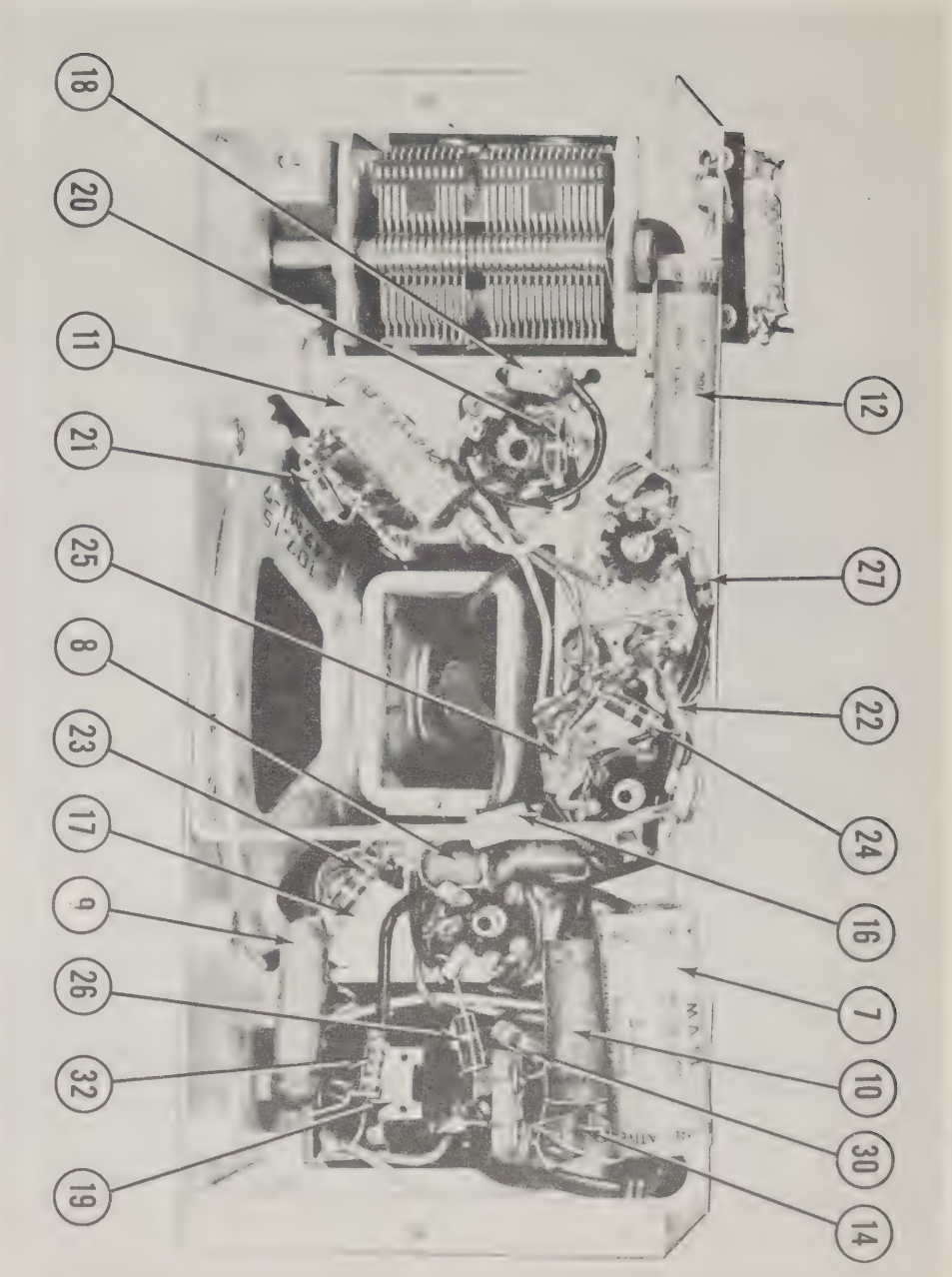
BATTERIES

ITEM No.	VOLTAGE	FADA PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
41	1.5V"A"		(2)#950			2 Used in Parallel
42	67.5V"B"			#467		

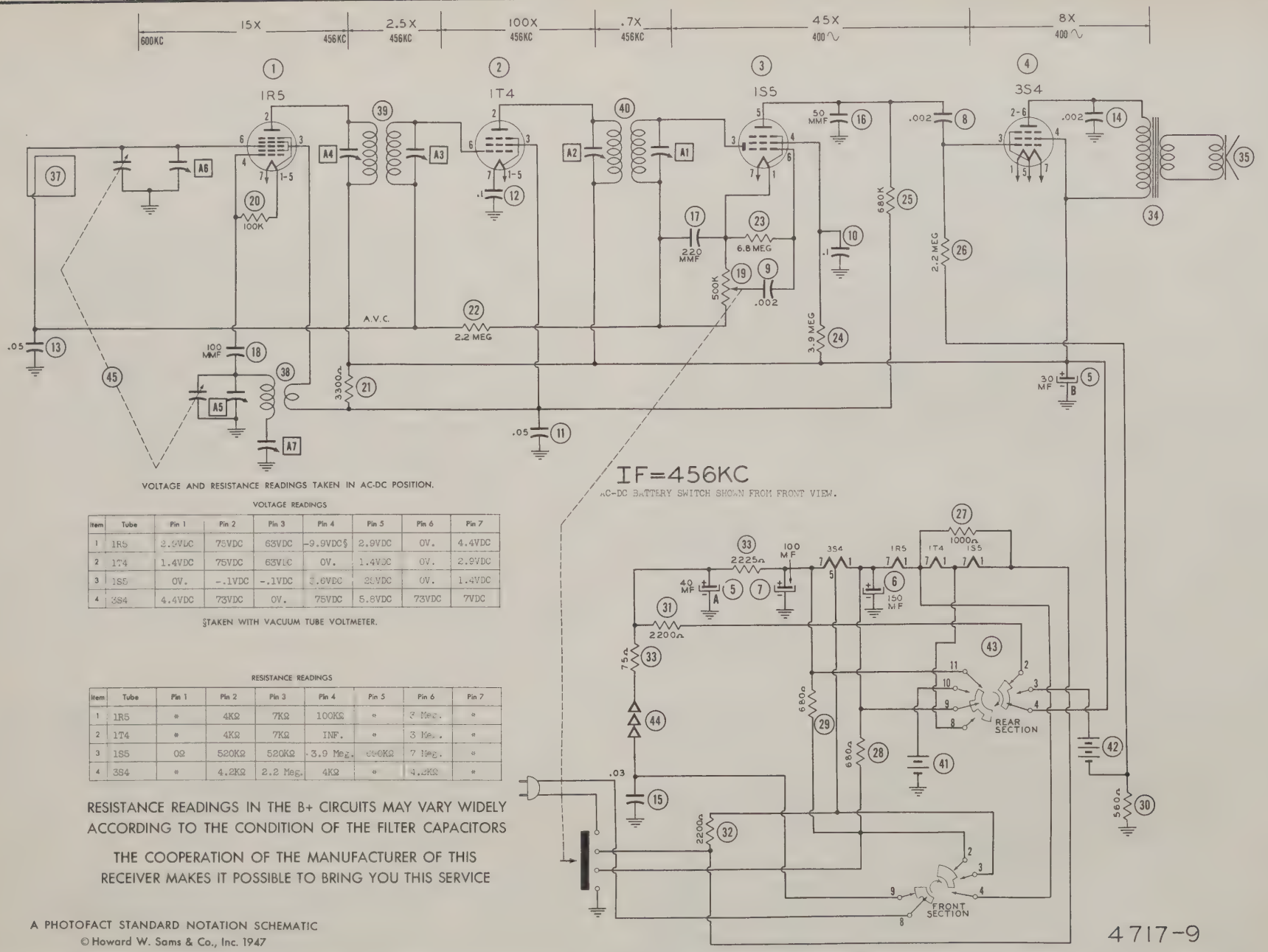
MISCELLANEOUS

ITEM No.	PART NAME	FADA PART No.	NOTES
43	Switch	47.4	Power Change-Over
44	Rectifier	112.6	Selenium
45	2 Gang Var. Cap.	27.2	14-325 MMF, 13-242 MMF

CHASSIS—BOTTOM VIEW



DATE 10/47 SET #27 FOLDER #4717-C



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	2.9VDC	75VDC	63VDC	-9.9VDC§	2.9VDC	0V.	4.4VDC
2	1T4	1.4VDC	75VDC	63VDC	0V.	1.4VDC	0V.	2.9VDC
3	1S5	0V.	-.1VDC	-.1VDC	3.6VDC	2.8VDC	0V.	1.4VDC
4	3S4	4.4VDC	73VDC	0V.	75VDC	5.8VDC	73VDC	7VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	4KΩ	7KΩ	100KΩ	*	3 Meg.	*
2	1T4	*	4KΩ	7KΩ	INF.	*	3 Meg.	*
3	1S5	0Ω	520KΩ	520KΩ	3.9 Meg.	680KΩ	7 Meg.	*
4	3S4	*	4.2KΩ	2.2 Meg.	4KΩ	*	4.2KΩ	*

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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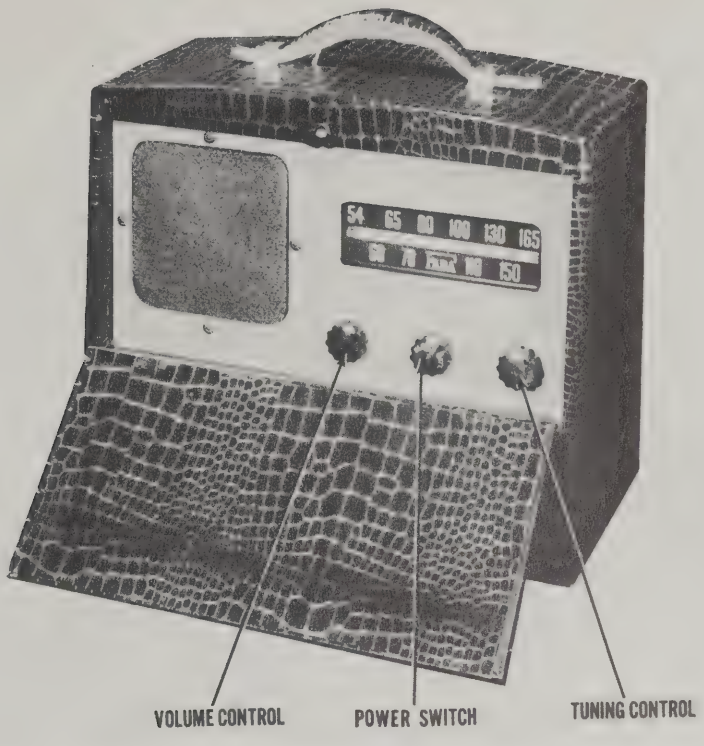
4717-9

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to chassis during stage gain measurements.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

FADA MODEL P-100
BATTERY OPERATED



FADA MODEL P-100
BATTERY OPERATED

FADA MODEL P-100

TRADE NAME	Fada, Model P-100
MANUFACTURER	Fada Radio & Electric Co., Inc., 525 Main St., Belleville, N.J.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 1T4 RF Amp., 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q5GT Power Output, 117Z3 Rectifier.
POWER SUPPLY RATING	105-125 Volts AC-DC or 9 Volt "A" Supply & 90 Volt "B" Supply .170 Amp. @ 117 Volts AC or 55MA @ 9 Volts DC & 12MA @ 90 Volts DC
TUNING RANGE—BROADCAST	538-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer at edge of dial pointer window at low freq. end of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to front stator of tuning cap. Low side to B-.	456KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF to reduce hum modulation.
2	200MMFD	High side to rear stator of tuning cap. Low side to B-.	1500KC	1500KC	"	A5	Adjust for maximum output.
3	200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "
4	200MMFD	"	600KC	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 and 4 until no further improvement can be made. Install receiver in cabinet.
5		Loop	1400KC	"	"	A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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DATE 10/47 SET #27 FOLDER #4717-10

PARTS LIST AND DESCRIPTIONS

FADA MODEL P-2[illegible]
BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1T4	1T4	6AR	
2	Converter	1R5	1R5	7AT	
3	IF Amp.	1T4	1T4	6AR	
4	Det.-AVC-AF	1S5	1S5	6AQ	
5	Power Output	3Q5GT	3Q5GT	7AP	
6	Rectifier	117Z3	117Z3	4FR	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FADA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	22.11	2NS11	DSE-403020-	TA-303	PRSA150-40-	EZ42215	Filter - Blue
B	30	150		TC47	150		30		" - Red
C	20	150					PRS150-20		" - Yellow
8A	150	15	22.9		M-250-15	UHC-215		BRH151	Fil. Bypass - Red
B	150	15			M-250-15	UHC-215		5RH151	" " - Red
9	.1	200	12.14	TP428	S-4-1	TC-1	484-.1	DT4P1	" "
10	.05	400	12.12	TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
11	.002	600	12.2	TP405	S-6-002	TC-22	684-002	DT6D2	Output Plate Bypass
12	.002	600	12.2	TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
13	.005	600	12.26	TP408	S-6-005	TC-25	684-005	DT6D5	" "
14	.1	200	12.14	TP428	S-4-1	TC-1	484-.1	DT4P1	AF Screen Bypass
15	.01	400	12.5	TP421	S-4-01	TC-11	484-01	DT4S1	AVC Filter
16	.005	400	12.2	TP408	S-6-005	TC-25	684-005	DT6D5	IF Grid Filter
17	.15	400	12.27	TP417	S-4-2	TC-2	484-.15	DT4P2	Screen Bypass
18	.01	400	12.5	TP421	S-4-01	TC-11	484-01	DT4S1	Osc. Feedback
19	.05	200	12.11	TP426	S-4-05	TC-5	484-05	DT4S5	AVC Filter
20	.25	400		TP430	S-4-25	TC-2	484-.25	DT4P25	Line Isolation
21	50	500	17.20	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	AF Plate Bypass
22	220	500	17.22	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter
23	100	500	17.21	MC230	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid
24	5			MCH205	MOS.5-55	MS-55	1469-000005	5R5V1	Osc. Fixed Trimmer-Cer.
25	220	500	17.22	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	RF Coupling
50	.1	200	12.14	TP428	S-4-1	TC-1	484-.1	DT4P1	Fil. Bypass

CONTROLS

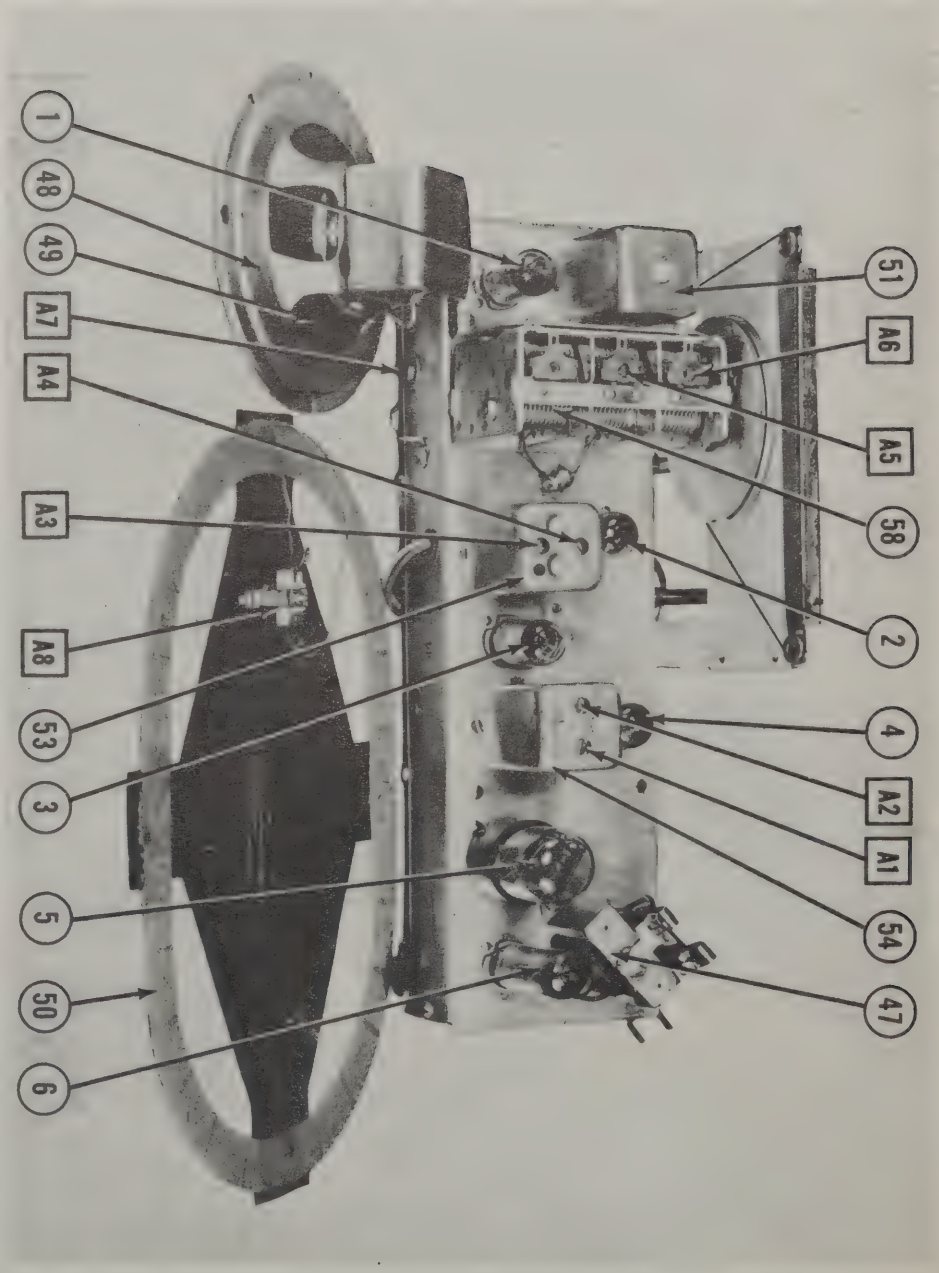
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
26A	500KΩ	½	52-9	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 26A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	IRC PART No.	IDENTIFICATION CODES
27	2.2 Meg.	½	32.34	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
28	6800Ω	½	32.10	BTS-6800	Blue-Gray-Red Screen Dropping
29	2.2 Meg.	½	32.34	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
30	68KΩ	½	32.16	BTS-68K	Blue-Gray-Yl. Oscillator Grid
31	6800Ω	½	32.10	BTS-6800	Blue-Gray-Red Converter Screen Dropping
32	3.9 Meg.	½	32.36	BTS-3.9 Meg.	Or.-White-Grn. IF Grid
33	2.2 Meg.	½	32.34	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
34	6.8 Meg.	½	32.46	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
35	3.9 Meg.	½	32.36	BTS-3.9 Meg.	Or.-White-Grn. AF Screen Dropping
36	470KΩ	½	32.30	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
37	1 Meg.	½	32.33	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
38	30Ω	1	117.1	BW-1-33	Or.-Blk.-Blk. Rectifier Ballast
39	1100Ω	1	32.37	BTA-1200	Br.-Br.-Red Filter
40	1850Ω	10	117.9	ABA-2000	Filament String-See Note 1
41	680Ω	½	32.31	BTS-680	Blue-Gray-Br. " "
42	2200Ω	½	32.56	BTS-2200	Red-Red-Red " "
43	1000Ω	½	32.8	BTS-1000	Br.-Blk.-Red " "
44	1000Ω	½	32.8	BTS-1000	Br.-Blk.-Red " "
45	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation-See Note 2
46	200Ω	1		BW-1-200	Red-Blk.-Br. Filter-See Note 2

Note 1-On IRC replacement set slider at 1850Ω from one end.
Note 2-Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FADA PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
47	6500Ω	3.1Ω	730Ω	.6Ω	42.3	A-3878	T22847	A-2931	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FADA PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
48	PM	3.1Ω	107.6	Mod. P5-X		
	COIL DIA.	VC DIA.				
49	4-3/4"	1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

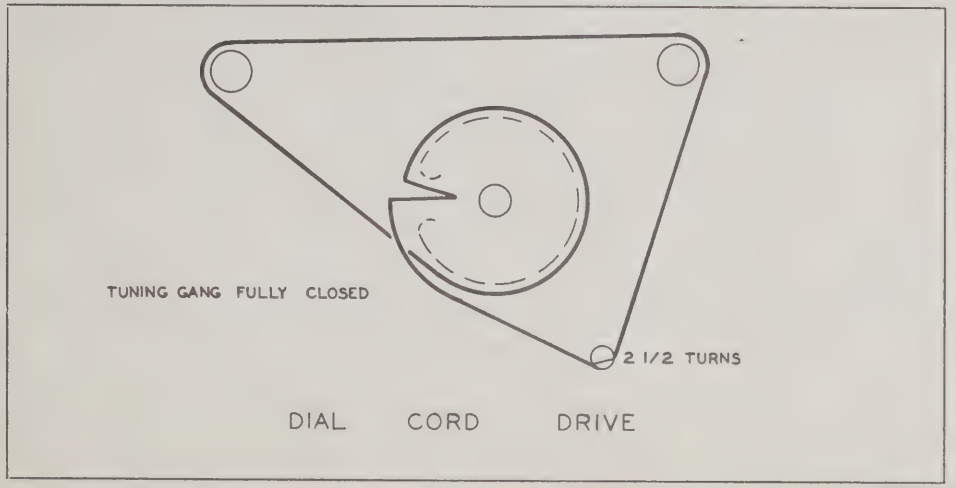
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	FADA PART No.	MEISSNER PART No.	
50	Loop Ant.		1.2Ω	37.26		
51	RF Coil	80Ω	7Ω	37.38	14-7558	
52	Osc. Coil	.3Ω	3Ω	37.35	14-1040	
53	Input IF	13Ω	13Ω	37.27	16-6658	
54	Output IF	26Ω	25Ω	37.33	16-6660	

BATTERIES

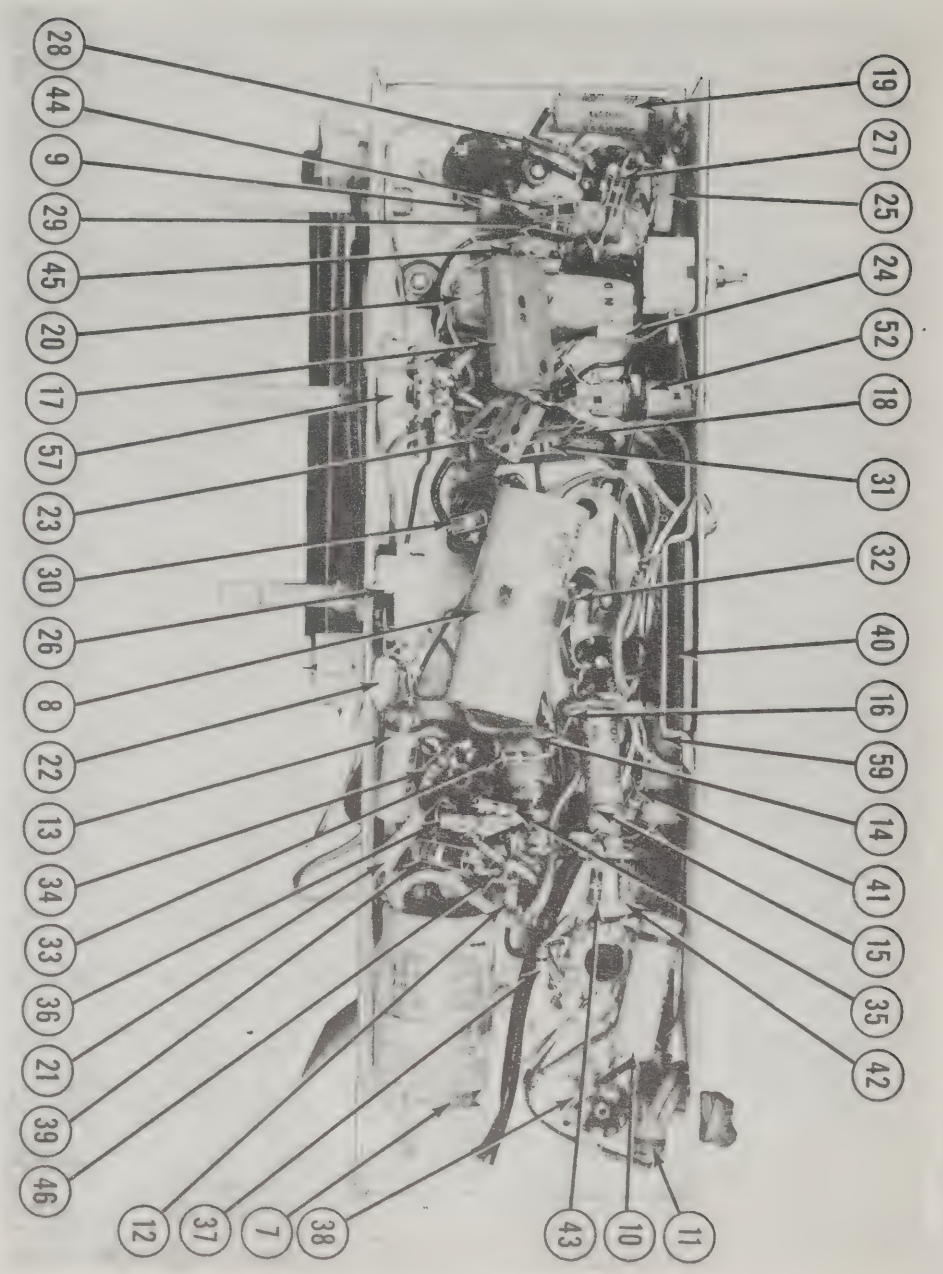
ITEM No.	VOLTAGE	FADA PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
55	9V "A"		(2)#746			2 Used in Series
56	90V "B"			(2)#482		2 Used in Series

MISCELLANEOUS

ITEM No.	PART NAME	FADA PART No.	NOTES
57	Switch	47.5	Power Change - Over & On-Off
58	3 Gang Var. Cap.	47.10	27-442 MMF (each section)
A6	Trimmer	132.1	Osc. Padder (250-500 MMF)

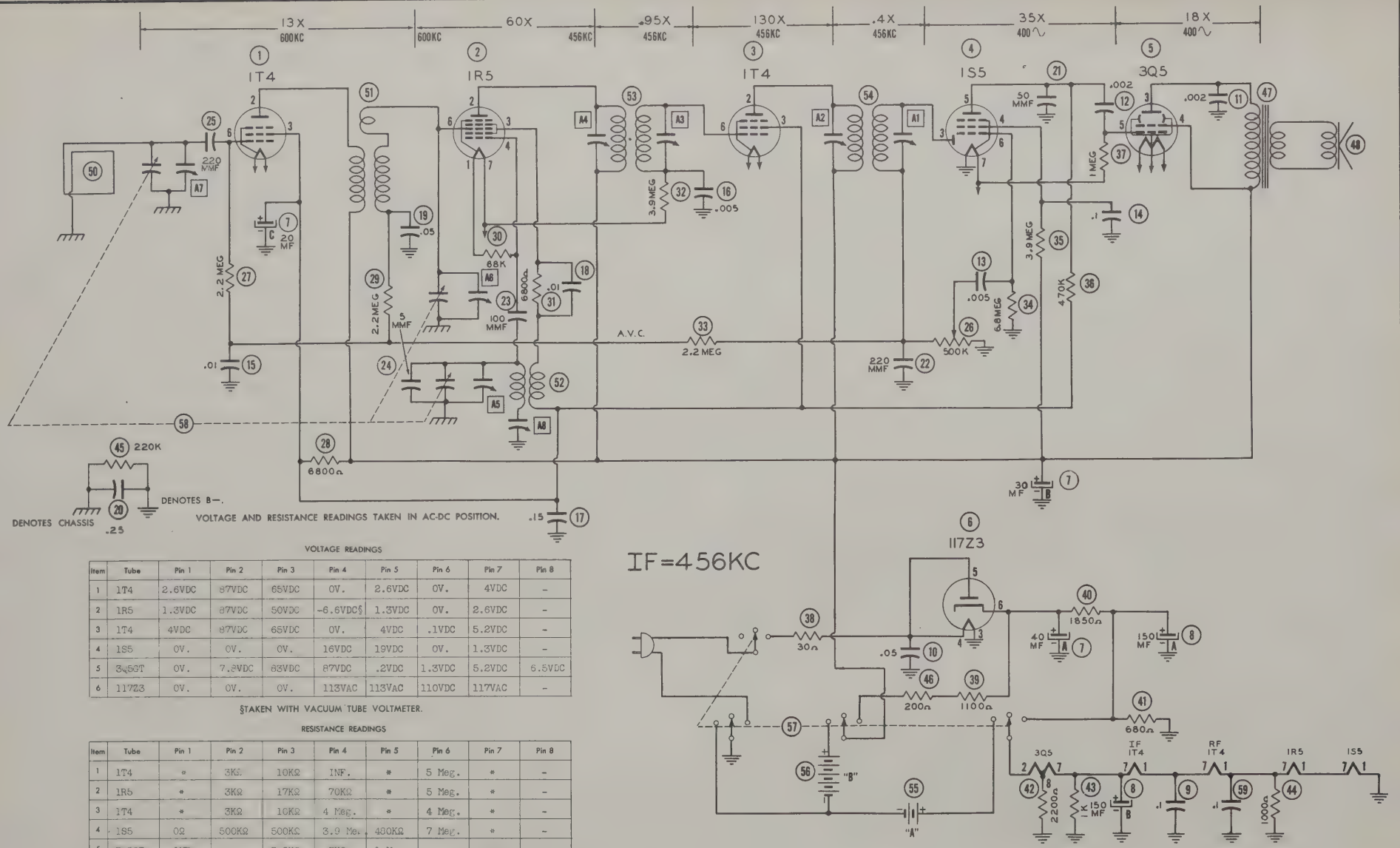


CHASSIS—BOTTOM VIEW



FADA MODEL F-100
BATTERY OPERATED

DATE 10/47 SET #27 FOLDER #4717-10



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1T4	2.6VDC	87VDC	65VDC	0V.	2.6VDC	0V.	4VDC	-
2	1R5	1.3VDC	87VDC	50VDC	-6.6VDC§	1.3VDC	0V.	2.6VDC	-
3	1T4	4VDC	87VDC	65VDC	0V.	4VDC	.1VDC	5.2VDC	-
4	1S5	0V.	0V.	0V.	16VDC	19VDC	0V.	1.3VDC	-
5	3Q5GT	0V.	7.3VDC	83VDC	87VDC	.2VDC	1.3VDC	5.2VDC	6.5VDC
6	117Z3	0V.	0V.	0V.	113VAC	113VAC	110VDC	117VAC	-

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1T4	*	3KΩ	10KΩ	INF.	*	5 Meg.	*	-
2	1R5	*	3KΩ	17KΩ	70KΩ	*	5 Meg.	*	-
3	1T4	*	3KΩ	10KΩ	4 Meg.	*	4 Meg.	*	-
4	1S5	0Ω	500KΩ	500KΩ	3.9 Meg.	480KΩ	7 Meg.	*	-
5	3Q5GT	INF.	*	3.5KΩ	3KΩ	1 Meg.	*	*	*
6	117Z3	INF.	INF.	0Ω	500Ω	500Ω	1.3KΩ	500Ω	-

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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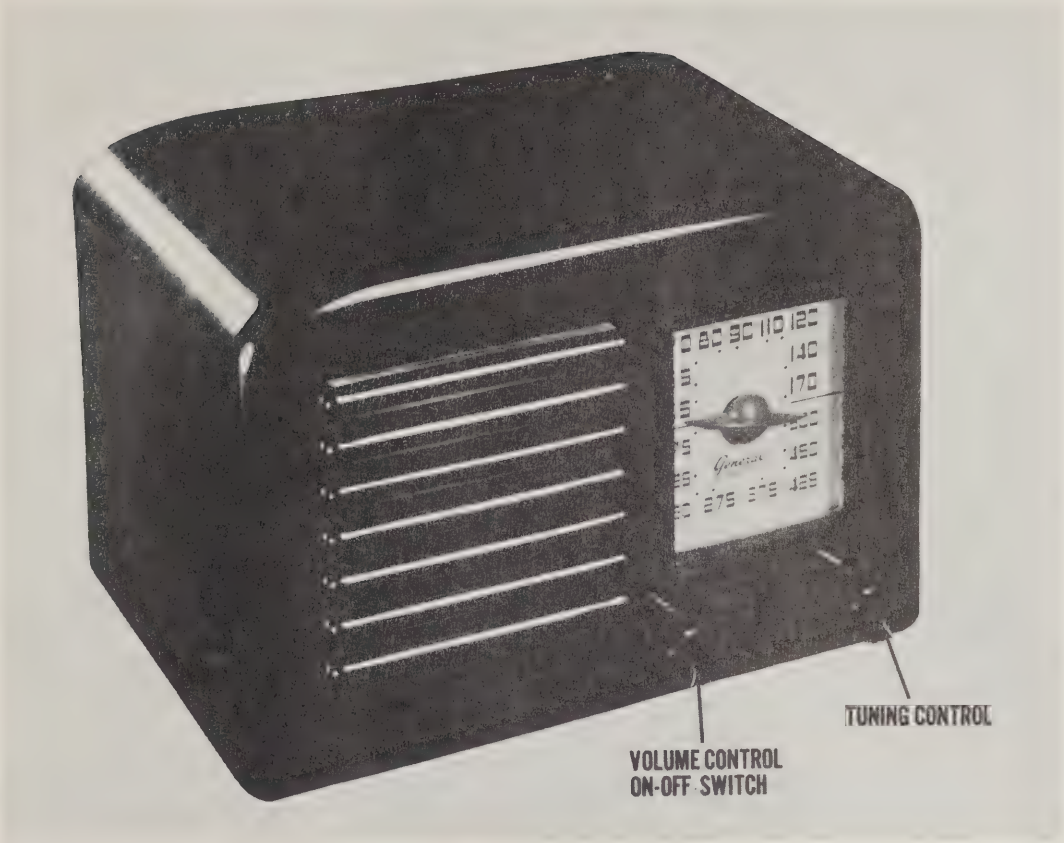
The stage gain measured values listed above are approximate values for an average operative operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to chassis during stage gain measurements.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

GENERAL TELEVISION MODEL 4B5



GENERAL TELEVISION MODEL 4B5

GENERAL TELEVISION MODEL 4B5

TRADE NAME	Gen. Television, Model 4B5
MANUFACTURER	General Television & Radio Corp., 2701 Lehmann St., Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1720KC RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2,	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD to reduce hum modulation.
2		Loop	1700KC	1700KC	"	A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1500KC	Tune for maximum output.	"	A4	Adjust for maximum output.

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DATE 10/47 SET #27 FOLDER #4717-11

PARTS LIST AND DESCRIPTIONS

GEN. TELEVISION
MODEL 4B5

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: GENERAL TELEVISION PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GENERAL TELEVISION PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	3-3	2N514	DSB-2x40-150	TA-240	PRSA150-40-20	EZ4215C‡	Filter - Red
B	20	150							" - Blue
7	.1	600		TP416	MPH-6-1	TC-1	684-.1	DT6P1	Line Filter
8	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
9	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
11	.05	600		TP415	S-6-05	TC-15	684-05	DT6S5	AVC Filter
12	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
13	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	IF Coupling
14	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter
15	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid

‡Do not use bypass section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GENERAL TELEVISION PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	½	20-1	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

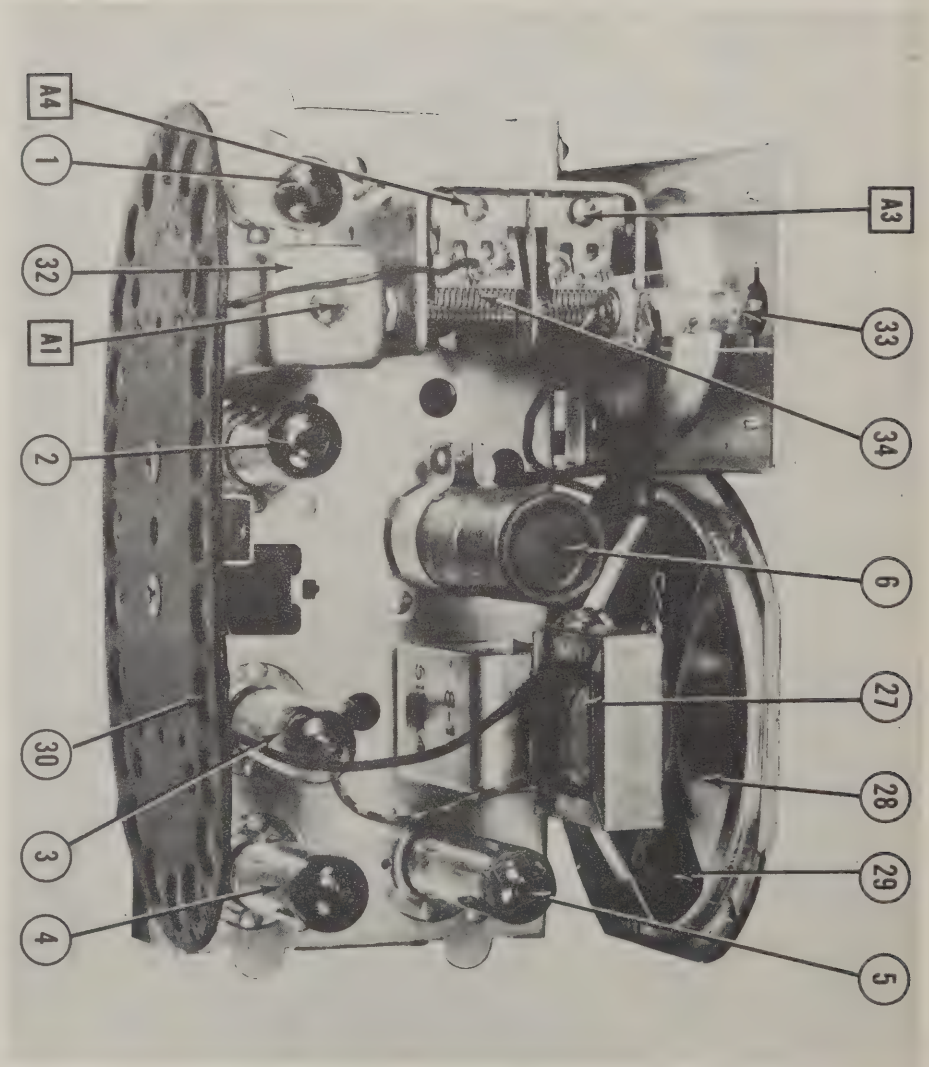
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GENERAL TELEVISION PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
17	10KΩ	½		BTS-10K	Br.-Blk.-Or. Oscillator Grid
18	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
19	7000Ω	½		BTS-6800	Vi.-Blk.-Red IF Plate Load
20	50KΩ	½		BTS-47K	Grn.-Blk.-Or. Diode RF Filter
21	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
22	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. AF Plate Load
23	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
24	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
25	2000Ω	1		BTA-2200	Red-Blk.-Red Filter
26	10Ω	½		BW-½-10	Br.-Blk.-Blk. Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: GENERAL TELEVISION PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
27	2100Ω	3.0Ω	170Ω	.5Ω		A-3876*	T22S45*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: GENERAL TELEVISION PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-107†		†Drill and tap magnet frame.
28	PM	3.0Ω	8-1	Mod. P5-V		
	CONE DIA.	VC DIA.				
29	4½"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

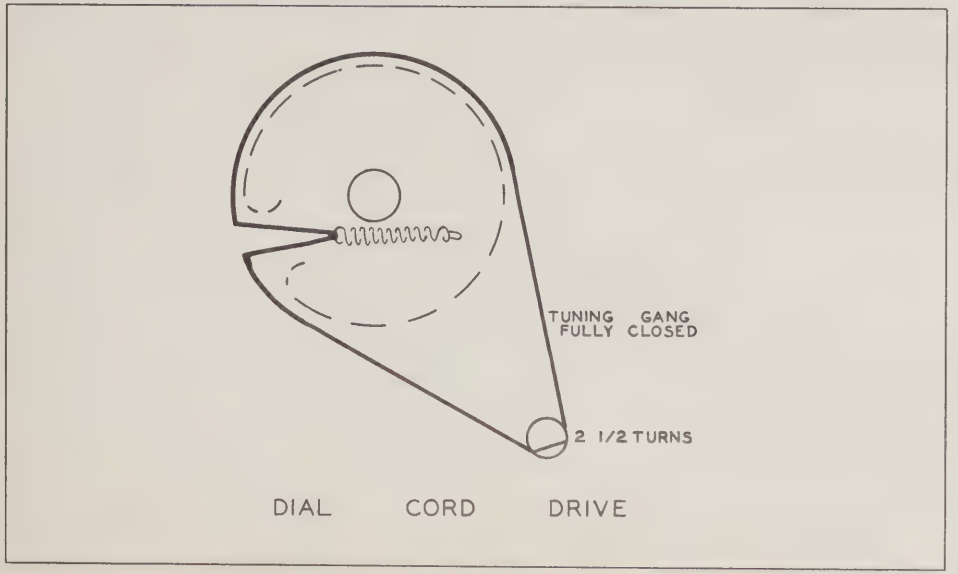
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: GEN. TELE. PART No.	MEISSNER PART No.	
30	Loop Ant.		2.8Ω	32-5A		
31	Osc. Coil	1Ω	5.5Ω		14-1040	
32	Input IF	21Ω	21Ω	15-4	16-6666	

DIAL LIGHT

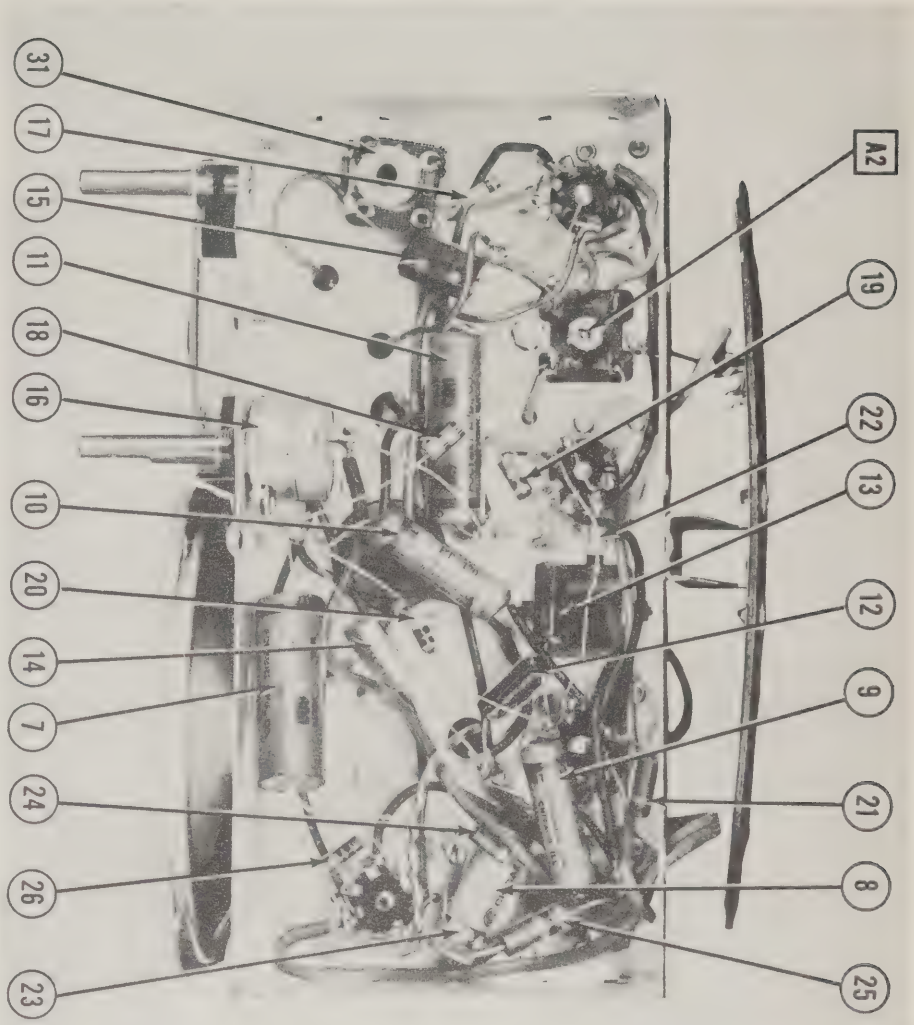
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: GENERAL TELEVISION PART No.		INSTALLATION NOTES
33	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	GEN. TELEVISION PART No.	NOTES
34	2 Gang Var. Cap.	6-1A	25-474 MMF, 33-191 MMF

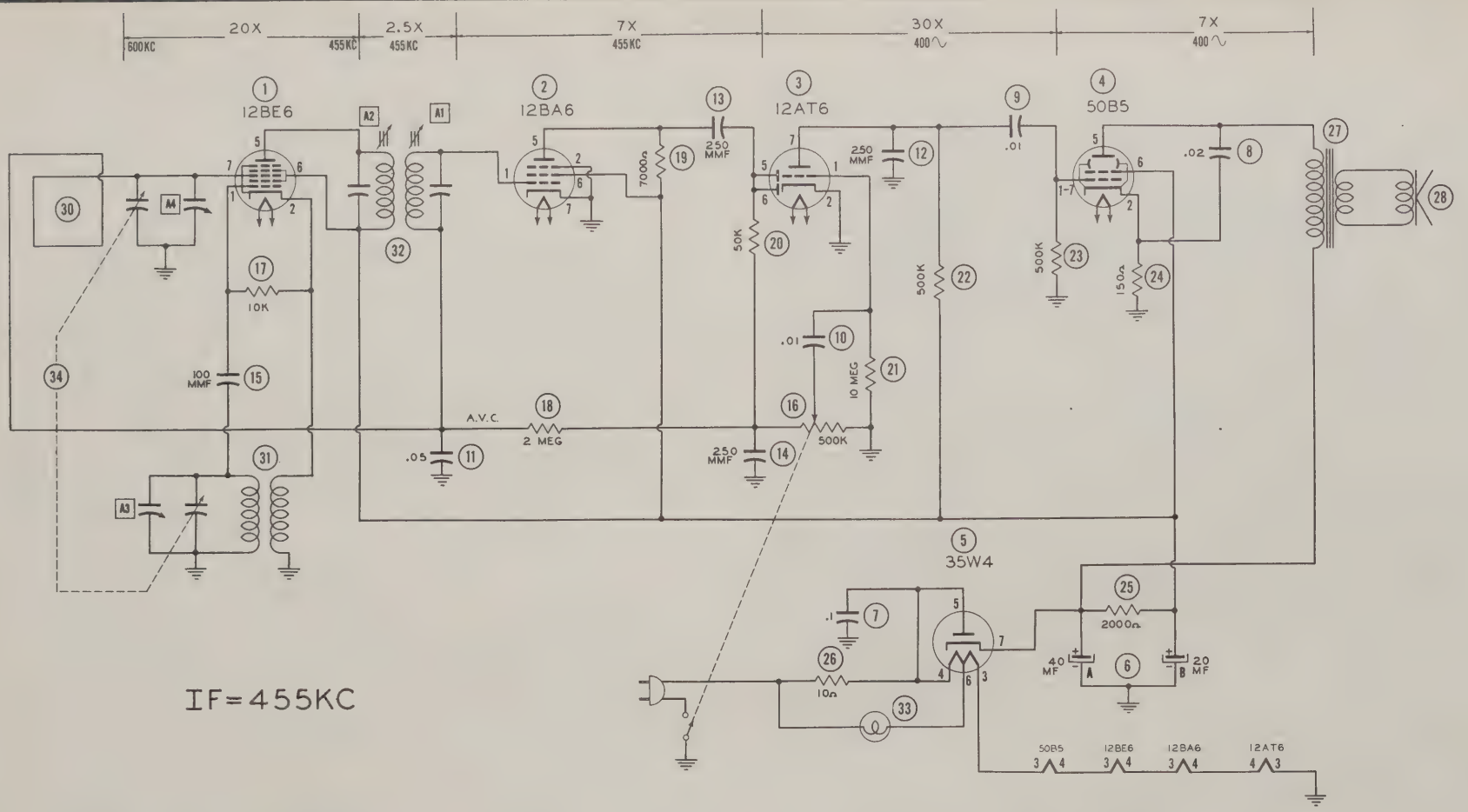


CHASSIS—BOTTOM VIEW



GEN. TELEVISION MODEL 485

GEN. TELEVISION MODEL 485



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-6.7VDC§	0V.	38VAC	25VAC	85VDC	85VDC	-.6VDC
2	12BA6	-.6VDC	0V.	25VAC	12VAC	48VDC	85VDC	0V.
3	12AT6	-.6VDC	0V.	0V.	12VAC	-.6VDC	-.6VDC	43VDC
4	50B5	0V.	5.8VDC	90VAC	38VAC	120VDC	85VDC	0V.
5	35W4	117VAC	0V.	90VAC	116VAC	116VAC	115VAC	126VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	10KΩ	1Ω	38Ω	26Ω	80KΩ	80KΩ	3 Meg.
2	12BA6	3 Meg.	0Ω	26Ω	13Ω	57KΩ	50KΩ	0Ω
3	12AT6	10 Meg.	0Ω	0Ω	13Ω	540KΩ	540KΩ	540KΩ
4	50B5	500KΩ	150Ω	90Ω	38Ω	60KΩ	80KΩ	500KΩ
5	35W4	120Ω	INF.	90Ω	118Ω	123Ω	118Ω	80KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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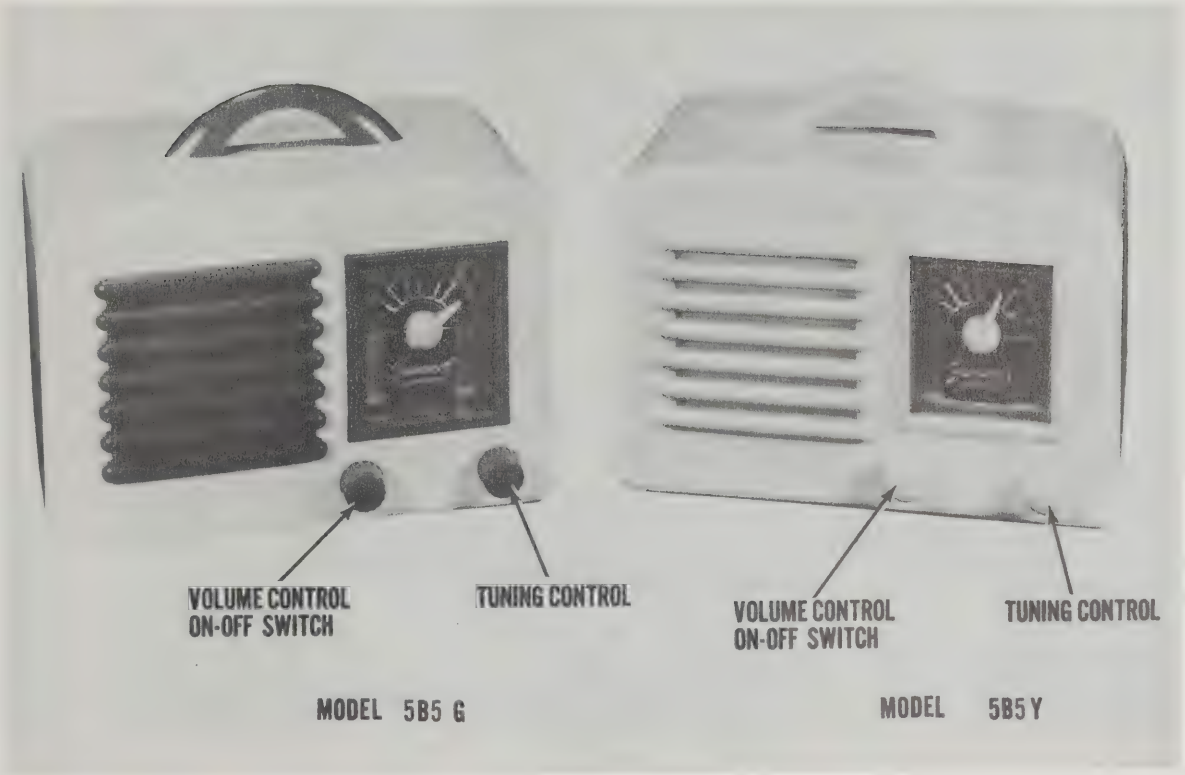
4717-11

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

GENERAL TELEVISION
MODELS 5B5G, 5B5Y



GENERAL TELEVISION
MODELS 5B5G, 5B5Y

TRADE NAME	General Television, Models 5B5G, 5B5Y
MANUFACTURER	General Television & Radio Corp., 2701 Lehmann St., Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 14Q7 or 12SA7 Converter, 14A7 or 12SK7 IF Amp., 14B6 or 12SQ7 Det.-AVC-AF, 50A5 or 50L6GT Power Output, 35Y4 or 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1720KC RATING .260 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1400KC	1400KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 10/47 SET #27 FOLDER #4717-12

PARTS LIST AND DESCRIPTIONS

GENERAL TELEVISION
MODELS 5B5G, 5B5Y

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: GENERAL TELE. PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	12SA7 Alternate
2	IF Amp.	14A7	14A7	8V	12SK7 "
3	Det.-AVC-AF	14B6	14B6	8W	12SQ7 "
4	Power Output	50A5	50A5	6AA	50L6GT "
5	Rectifier	35Y4	35Y4	5AL	35Z5GT "

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GEN. TELE. PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150		2N514	DSB-2x40-150	TA-240	PRSA-150-20-40	E24215C1	Filter - Red
B	20	150							" - Blue
7	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
8	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
9	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
10	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
11	.1	600		TP418	MPH-6-1	TC-1	684-.1	DT6P1	Line Filter
12	.1	400		TP428	S-4-1	TC-1	484-.1	DT4W1	Isolation-See Note
13	100			MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Oscillator Grid Cap.
14	100			MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter
15	250			MC240	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass

Note-Not used in all models.
† Do not use bypass section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GEN. TELE. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	½	20-1	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

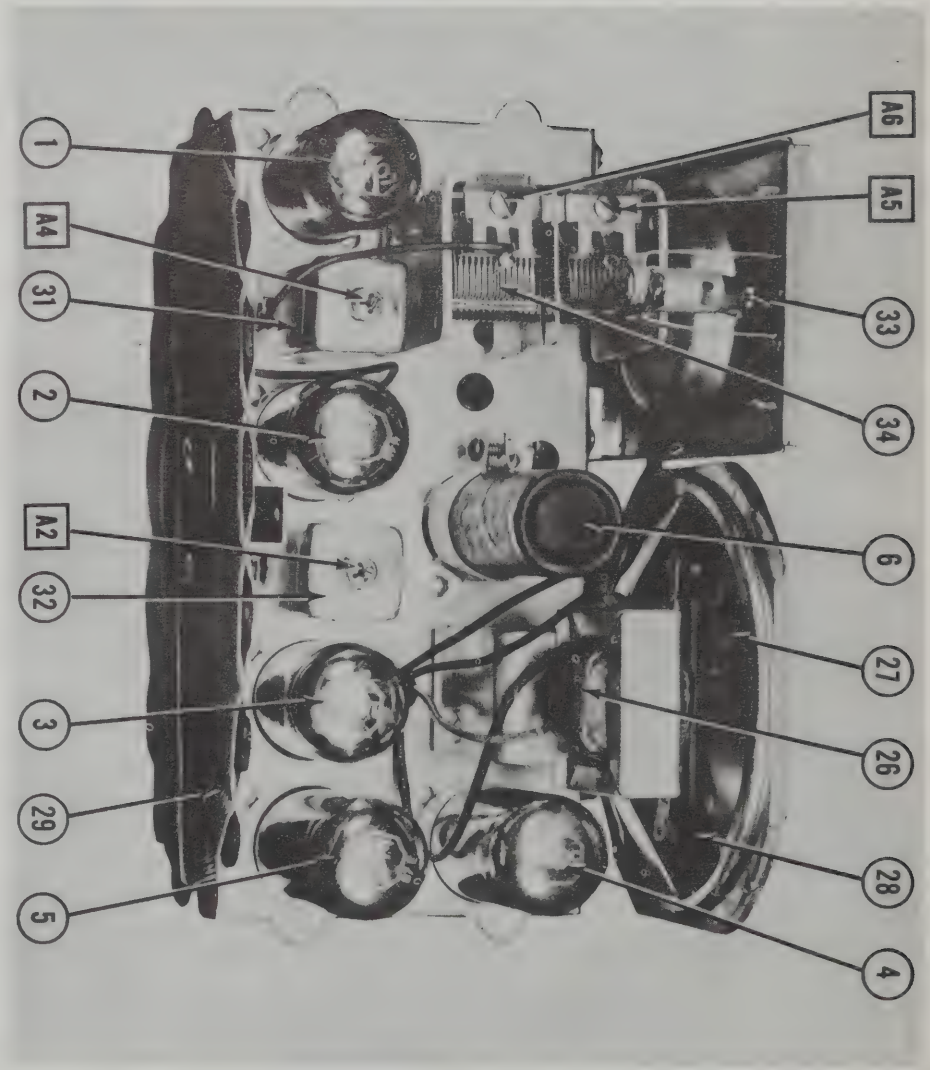
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GENERAL TELE. PART No.	IRC PART No.	IDENTIFICATION CODES
17	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
18	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AVC Network
19	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
20	6 Meg.	½		BTS-6.8 Meg.	Blue-Blk.-Grn. AF Grid
21	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. AF Plate Load
22	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
23	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
24	10Ω	½		BW-½-10	Br.-Blk.-Blk. Line Dropping
25	2000Ω	1		BTA-2200	Red-Blk.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: GEN. TELE. PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
26	2100Ω	3.0Ω	170Ω	.5Ω		A-3876*	T22S45*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: GENERAL TELE. PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-107‡		‡Drill and tap magnet frame.
27	PM	3.0Ω	8-1	Mod. P5-V		
	CONE DIA.	VC DIA.				
28	4½"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

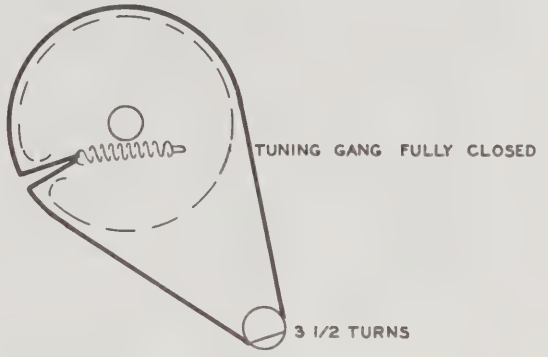
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: GEN. TELE. PART No.	MEISSNER PART No.	
29	Loop Ant.		1.5Ω			
30	Osc. Coil	1.5Ω	6Ω		14-1040	
31	Input IF	11Ω	11Ω		16-6668	
32	Output IF	11Ω	11Ω		16-6669	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: GEN. TELE. PART No.		INSTALLATION NOTES
33	Bayonet	6-8	0.15A	Brown			Type 47

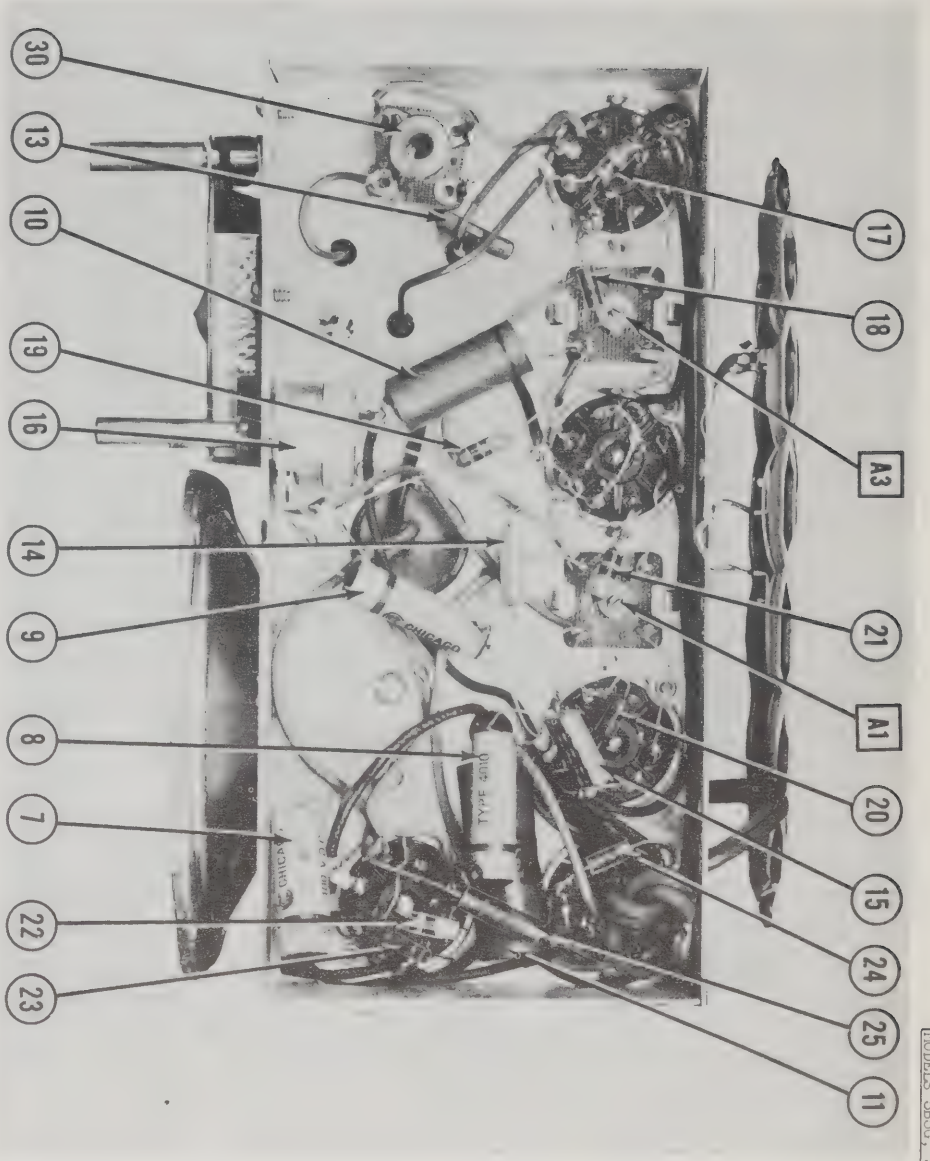
MISCELLANEOUS

ITEM No.	PART NAME	GEN. TELE. PART No.	NOTES
34	2 Gang Var. Cap.		35-467 MMF, 33-195 MMF

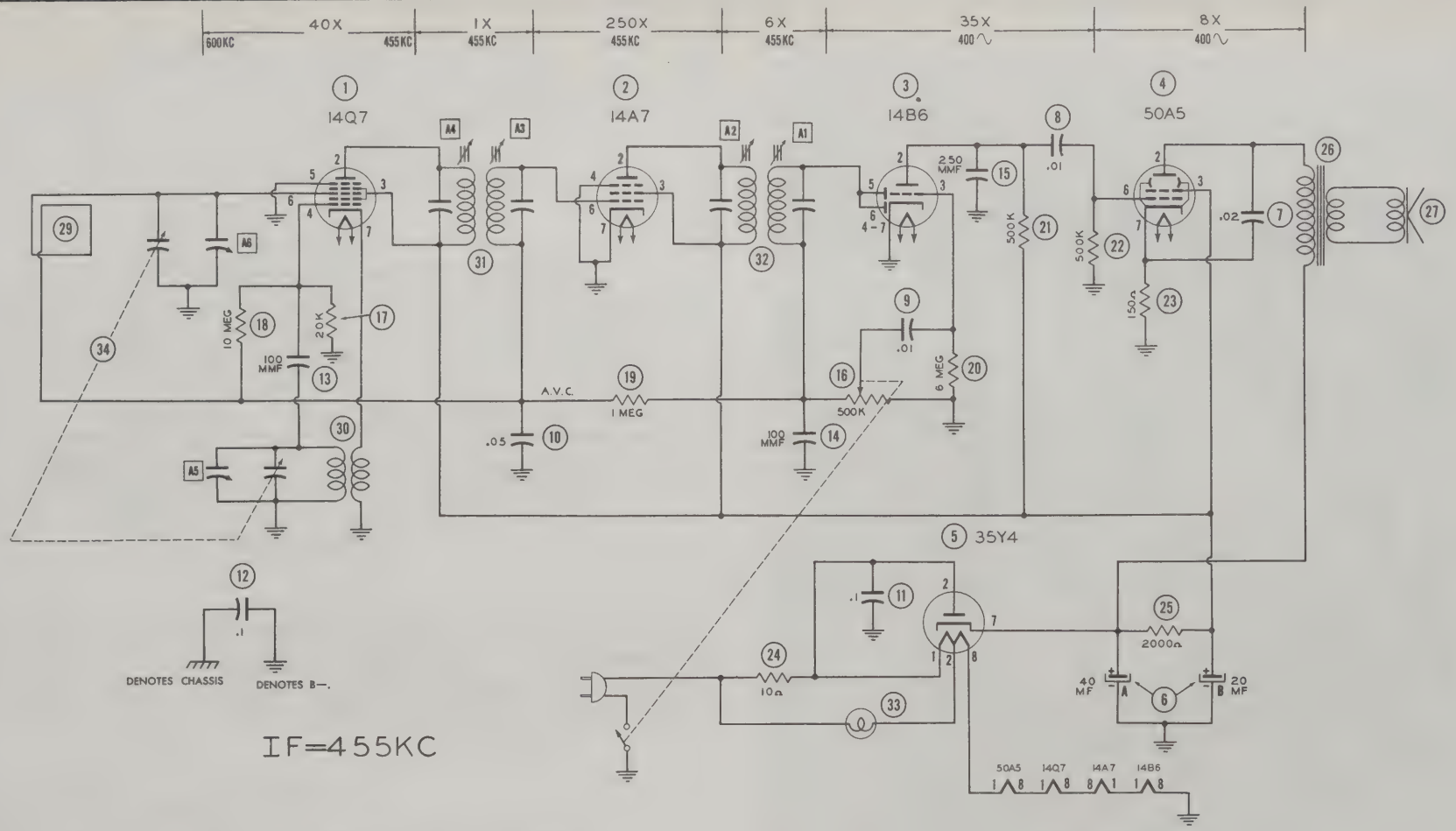


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



GENERAL TELEVISION
MODELS 5B5G, 5B5Y



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	36VAC	82VDC	82VDC	-9.3VDC§	0V.	-.4VDC	0V.	24VAC
2	14A7	12VAC	82VDC	82VDC	0V.	0V.	-.4VDC	0V.	24VAC
3	14B6	12VAC	50VDC	-.7VDC	0V.	-.7VDC	-.7VDC	0V.	0V.
4	50A5	85VAC	117VDC	87VDC	0V.	0V.	0V.	6.2VDC	36VAC
5	35Y4	115VAC	115VAC	0V.	113VAC	117VAC	0V.	124VDC	85VAC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	37Ω	100KΩ	100KΩ	20KΩ	0Ω	1.2 Meg.	1Ω	25Ω
2	14A7	13Ω	100KΩ	100KΩ	0Ω	0Ω	1.2 Meg.	0Ω	25Ω
3	14B6	13Ω	600KΩ	6 Meg.	0Ω	450KΩ	450KΩ	0Ω	0Ω
4	50A5	87Ω	100KΩ	100KΩ	INF.	INF.	500KΩ	190Ω	37Ω
5	35Y4	120Ω	120Ω	INF.	112Ω	115Ω	0Ω	100KΩ	87Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4717-12

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GLOBE MODEL 552

GLOBE MODEL 552

GLOBE MODEL 552

TRADE NAME	Globe, Models 552
MANUFACTURER	Globe Electronics, Inc., 225 W. 17th St., New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1730KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a .1 MFD. capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200 MMF.	High side to ext. ant. lead. Low side to ext. ground.	1500KC	1500KC	"	A5	Adjust for maximum output.
3	200 MMF.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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DATE 10/47 SET #27 FOLDER #4717-13

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: GLOBE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GLOBE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		2N520	DSB-5030-150	TA-530	PRSA-150-30-50	EZ5515	Filter - Green
B	30	150							" - Red
7	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
8	.007	400		TP445	S-4-01	TC-26	484-0075	DT6D6	Audio Coupling
9	.007	400		TP445	S-4-01	TC-26	484-0075	DT6D6	" "
10	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
11	.02	400		TP423	MPH-6-02	TC-12	484-02	DT4S2	Line Filter
12	200			MC237	MO.5-32	1FM-32	1468-0002	5W5T2	AF Plate Bypass
13	200			MC237	MO.5-32	1FM-32	1468-0002	5W5T2	AF Grid Bypass
14	200			MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Diode Filter
15	50			MC225	MO.5_45	1FM-45	1468-00005	5W5Q5	Oscillator Grid Cer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GLOBE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	½		MR48	D13-133	M-60-Z	Volume control
B	Shaft			Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch			M26	41	SW-A	" " " " "

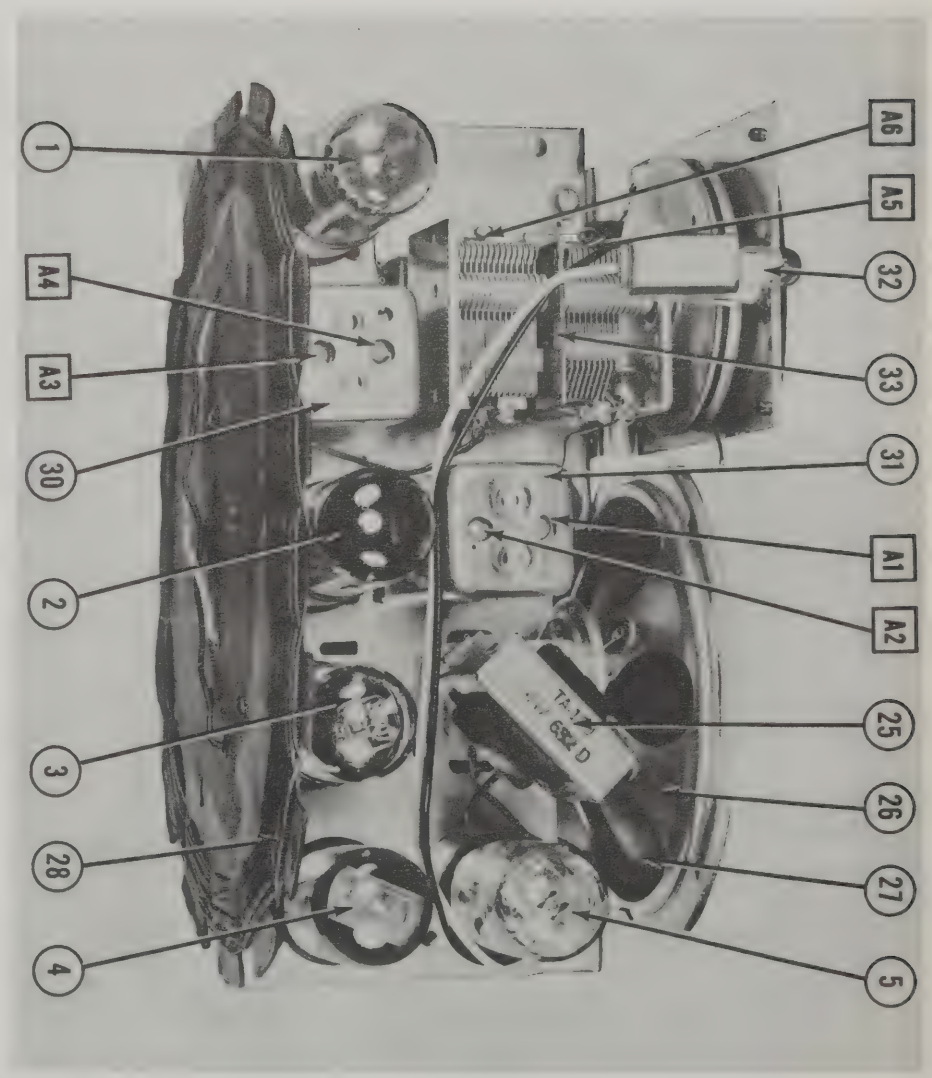
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GLOBE PART No.	IRC PART No.	IDENTIFICATION CODES
17	8200Ω	½		BTS-8200	Gray-Red-Red Oscillator Grid
18	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
19	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. " "
20	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
21	560KΩ	½		BTS-560K	Grn.-Blue-Yl. AF Plate Load
22	560KΩ	½		BTS-560K	Grn.-Blue-Yl. Output Grid
23	120Ω	1		BW-1-120	Br.-Red-Br. Output Cathode
24	1200Ω	1		BTA-1200	Br.-Red-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: GLOBE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
25	2100Ω	3.0Ω	160Ω	.6Ω	Part of 5867	A-3876*	T22S45*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GLOBE PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
26	PM	3.0Ω	5867	Mod. P5-X		
	CONE DIA.	VC DIA.				
27	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

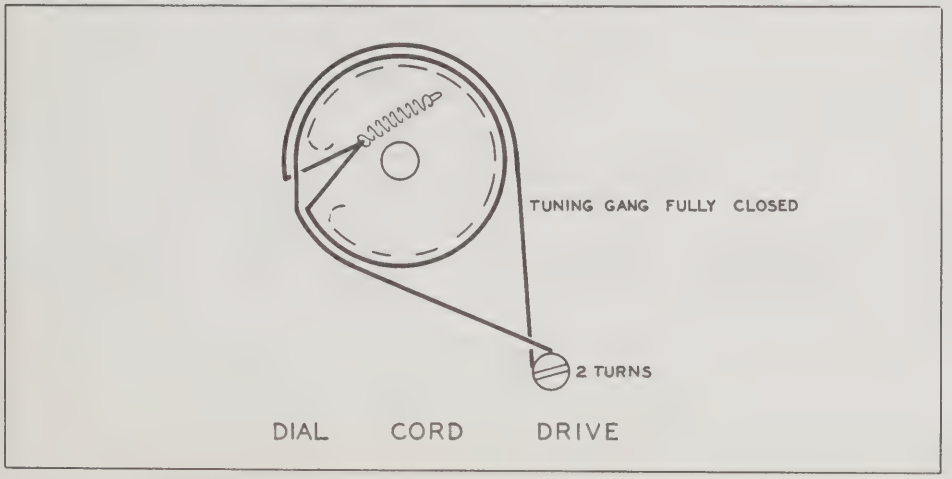
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GLOBE PART No.	MEISSNER PART No.	
28	Loop Ant.	.1Ω	1Ω			
29	Osc. Coil		6Ω		14-1040	
30	Input IF	16Ω	16Ω		16-6658	
31	Output IF	16Ω	16Ω		16-6660	

DIAL LIGHT

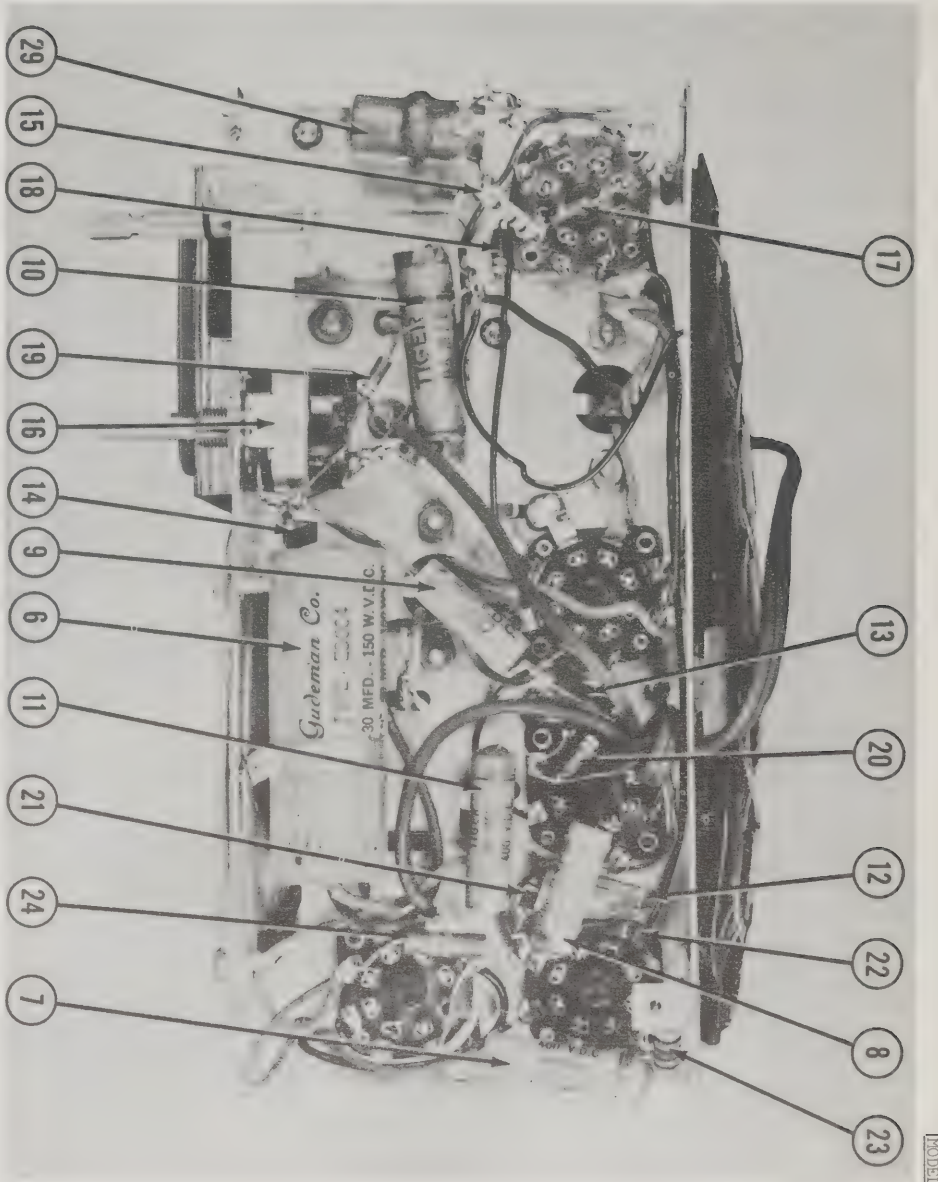
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GLOBE PART No.		
32	Bayonet	6-8	0.15	Brown			Type 47

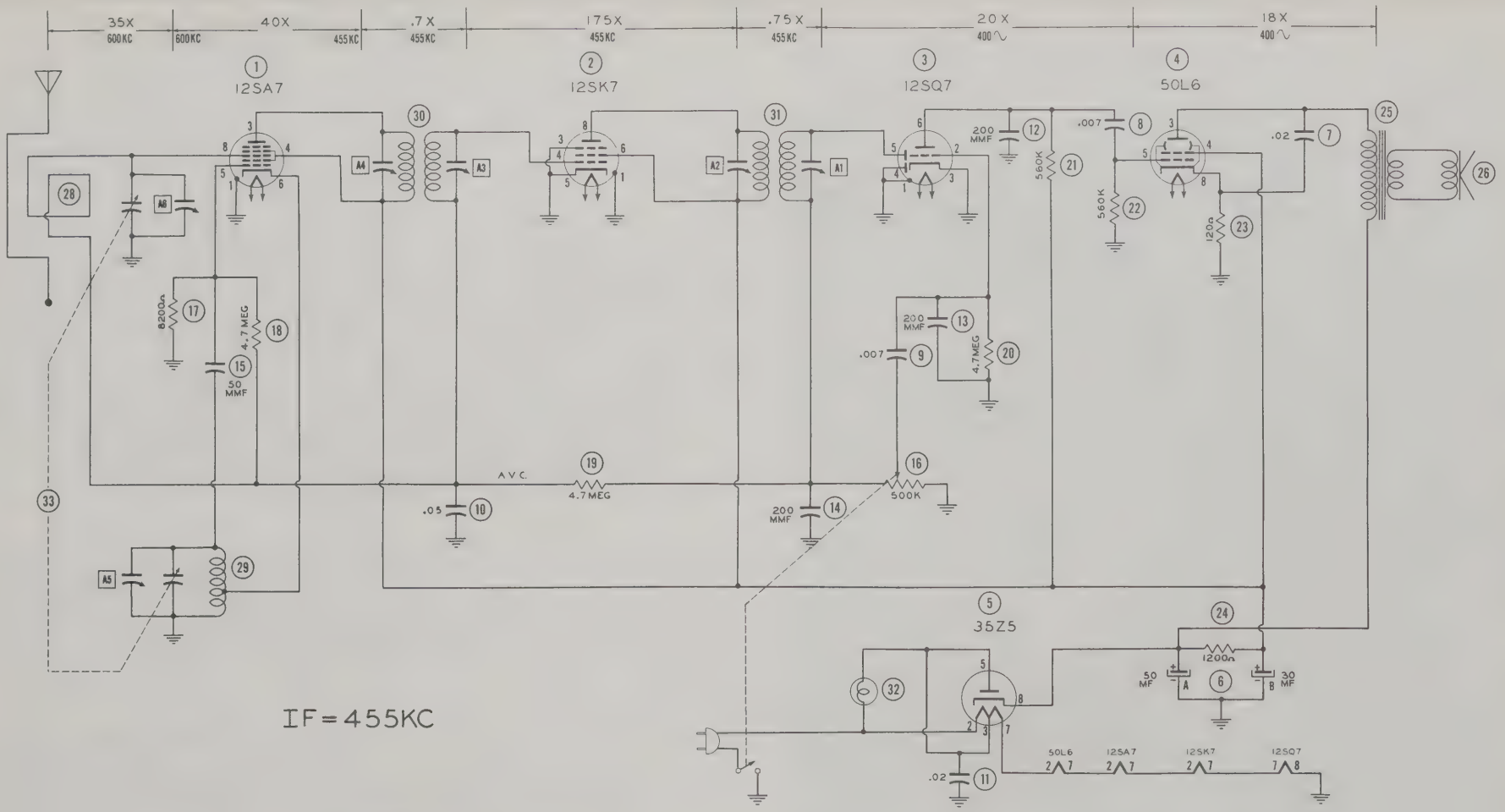
MISCELLANEOUS

ITEM No.	PART NAME	GLOBE PART No.	NOTES
33	2 Gang Var. Cap		30-462 MMF, 32-198 MMF



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	38VAC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	12SK7GT	0V.	25VAC	0V.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	12SQ7GT	0V.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	50L6GT	0V.	85VAC	117VDC	94VDC	0V.	0V.	38VAC	5.4VDC
5	35Z5GT	0V.	117VAC	112VAC	0V.	112VAC	0V.	85VAC	122VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	50L6GT	INF.	[illegible]	[illegible]	[illegible]	[illegible]	INF.	[illegible]	[illegible]
5	35Z5GT	INF.	[illegible]	[illegible]	INF.	[illegible]	INF.	[illegible]	[illegible]

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

KNIGHT MODEL 7B-220

TRADE NAME	Knight, Model 7B-220
SUPPLIER	Allied Radio Corp., 833 W. Jackson Blvd., Chicago 7, Ill.
TYPE SET	AC-DC Operated FM-AM Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12BA6 RF Amp., 12BE6 Converter, 12BA6 IF Amp., 12BA6 FM IF Amp., 12S8GT Discriminator-AM Det.-AVC-AF, 50B5 Power Output.
POWER SUPPLY	110-120 Volts AC-DC — RATING .400 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535 - 1730KC — FM 87.5 - 109 MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

To check accuracy of adjustments in Step 8 proceed as follows:

Adjust the output of signal generator for a meter reading of 4 volts at exactly 10.7MC. Tune signal generator below 10.7MC until meter reads 2 volts and note the frequency at which this occurs. Tune signal generator above 10.7MC until meter reads 2 volts and note the frequency. The number of KC difference from 10.7MC on either side of 10.7MC should be about the same. A slight difference is not serious. However, if one side is two times the other, or if a double peak occurs then A11, A12, A13 & A14 should be readjusted and rechecked.

The AM IF Transformers should always be adjusted before making the FM IF adjustments. After the FM IF adjustments have been made the AM IF adjustments should be rechecked.

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal gen. and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.2 MFD.	High side to front stator of tuning cap. Low side to chassis.	455KC	BC (counter clockwise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD to reduce hum modulation.
2	250MMFD	High side to terminal #2 of ant. terminal strip. Low side to terminal #3.	"	"	Tuning cap. fully closed.	"	A5	Adjust for minimum output.
3	250MMFD	"	1730KC	"	Tuning cap. fully open.	"	A6	Adjust for maximum output.
4	250MMFD	"	1400KC	"	Tune for maximum output.	"	A7	" " " "
5	250MMFD	"	600KC	"	"	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 & 5 until no further improvement can be made.
6	.002MFD	High side to Pin 1 (grid) of 12BA6 2nd IF Tube (#4). Low side to chassis.	10.7MC	FM (clockwise)	Tuning cap. fully open.	DC Voltmeter (20K Ω per volt) across cap. (9).	A9	Adjust for maximum deflection.
7	.002MFD	"	10.7MC (400 ~ amplitude modulated)	"	"	"	A10	Adjust for minimum audio output. This is a critical adjustment and will be correct only when a high audio response is found when tuning on each side of minimum setting.
8	.002MFD	High side to Pin 7 (grid) of 12BE6. Low side to chassis.	10.7MC	"	"	"	A11,A12 A13,A14	Adjust for maximum deflection. Attenuate signal gen. output to maintain a reading from 2 to 4 volts. Check accuracy of these adjustments per prealignment notes.
9	5ft. of 300Ω transmission line.	Connect sig. gen. output to the 300Ω trans. line. Connect trans. line to terminal #1 & #3 of ant. terminal strip.	108MC (unmodulated)	"	108MC	"	A15	Adjust for maximum deflection.
10	"	"	104MC	"	Tune for maximum output.	"	A16,A17	Adjust for maximum deflection.

A frequency modulated signal generator may be used instead of an AM signal gen. If it is, it is recommended that an unmodulated signal be used in all of the above FM alignment Steps with the exception of Step 7. In step 7 use a frequency modulated signal (22.5KC deviation) and adjust A10 for maximum audio output.

KNIGHT
MODEL 7B220

KNIGHT
MODEL 7B220

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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DATE 10/47 SET #27 FOLDER #4717-14

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12BA6	12BA6	7BK	
2	Converter	12BE6	12BE6	7CH	
3	IF Amp.	12BA6	12BA6	7BK	
4	FM IF Amp.	12BA6	12BA6	7BK	
5	Discrim-AM. Det.-AVC-AF	12S8GT	12S8GT	8CB	
6	Power Output	50B5	50B5	7BZ	

CAPACITORS

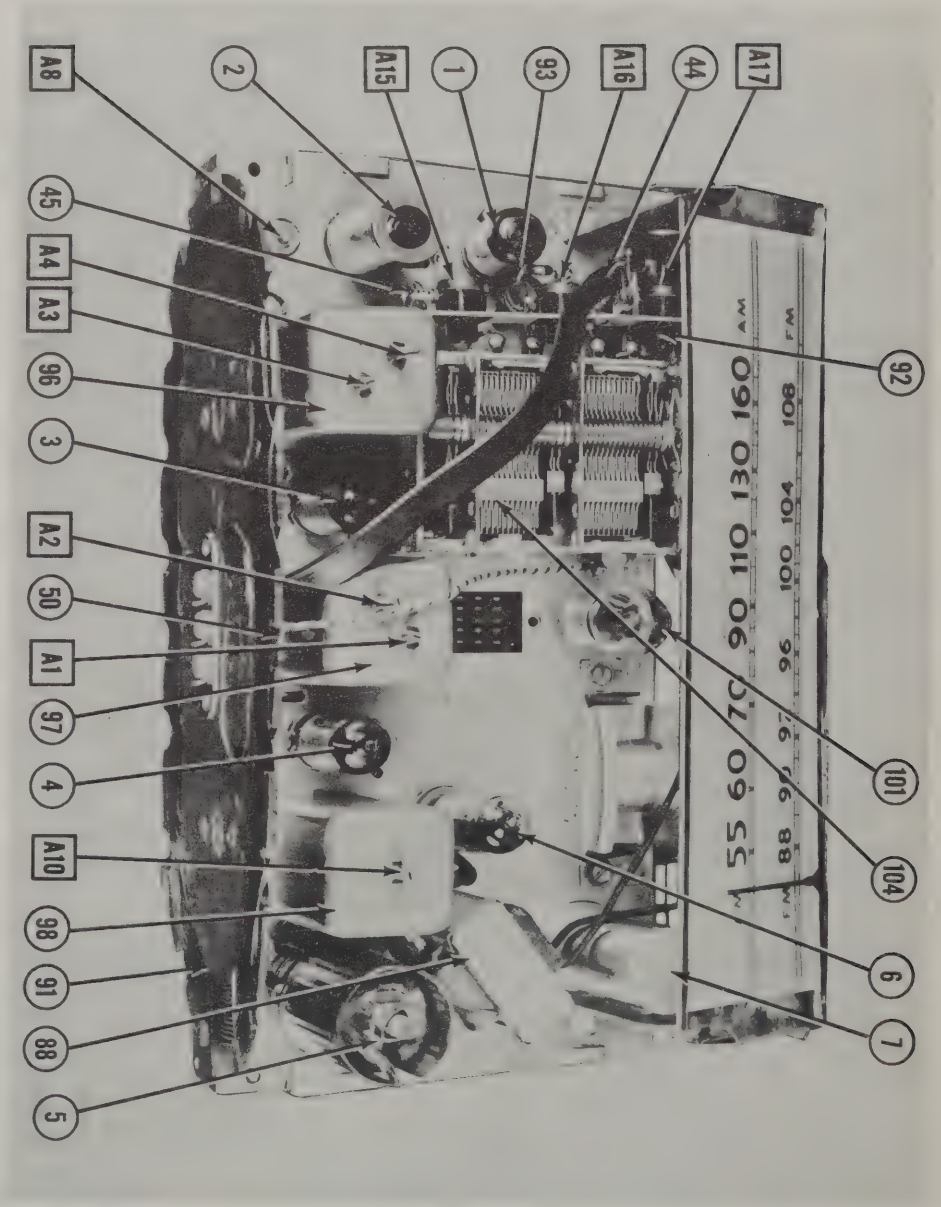
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: KNIGHT PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150		FP214	DY-2x50-150	EL35	AF1010D	UP5515	■ Filter
B	10	150	25E22	TC42	M-10-150	UT-501	PRS-150-12	BR1215	▲ "
C	50	150							"
8	20	25	25E3	TC26	M-25-25	TA25	PRS-25-25	BR202A	Output Cathode Bypass
9	4	50	25E23			TA55		BR550	Stabilizing Capacitor
10	.005	400	23E408	TP408	S-6-005	TC-25	484-005	DT6D5	Output Plate Bypass
11	.05	200	23E2014-8	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
12	.2	200	23E2014-10	TP429	S-4-2	TC-2	484-.2	DT4P2	AF Plate Decoupling
13	.002	400	23E2014-12	TP405	S-6-002	TC-22	484-002	DT6D2	Audio Coupling
14	.005	200	23E2014-3	TP408	S-6-005	TC-25	484-005	DT6D5	Tone Comp.
15	.002	400	23E2014-12	TP405	S-6-002	TC-22	484-002	DT6D2	" "
16	.05	200	23E2014-8	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
17	.002	400	23E2014-12	TP405	S-6-002	TC-22	484-002	DT6D2	De-emphasis
18	.01	200	23E2014-6	TP421	S-4-01	TC-11	484-01	DT4S1	FM 2nd IF Plate Decoup.
19	.01	200	23E2014-6	TP421	S-4-01	TC-11	484-01	DT4S1	" " " Screen Bypass
20	.01	200	23E2014-6	TP421	S-4-01	TC-11	484-01	DT4S1	" " " Cathode "
21	.01	200	23E2014-6	TP421	S-4-01	TC-11	484-01	DT4S1	AVC Filter
22	.01	200	23E2014-6	TP421	S-4-01	TC-11	484-01	DT4S1	1st IF Plate Decoup.
23	.01	200	23E2014-6	TP421	S-4-01	TC-11	484-01	DT4S1	1st IF Screen Bypass
24	.05	200	23E2014-8	TP426	S-4-05	TC-15	484-05	DT4S5	RF Bypass Power Supply
25	.01	200	23E2014-6	TP421	S-4-01	TC-11	484-01	DT4S1	AVC Filter
26	.05	200	23E2014-8	TP426	S-4-05	TC-15	484-05	DT4S5	" "
27	.01	200	23E2014-6	TP421	S-4-01	TC-11	484-01	DT4S1	Conv. Plate Decoup.
28	.02	200	23E2014-7	TP423	S-4-02	TC-12	484-02	DT4S2	Conv. Screen Bypass
29	.01	200	23E2014-6	TP421	S-4-01	TC-11	484-01	DT4S1	RF Screen Bypass
30	.05	400	23E2014-8	TP426	MPH-6-05	TC-15	484-05	DT4S5	Line Filter
31	.05	200	23E2014-8	TP426	S-4-05	TC-15	484-05	DT4S5	Filament Bypass
32	.02	200	23E213	TP423	S-4-02	TC-12	484-02	DT4S2	" "
33	.02	200	23E213	TP423	S-4-02	TC-12	484-02	DT4S2	" "
34	.05	200	23E2014-8	TP426	S-4-05	TC-15	484-05	DT4S5	1st IF Cathode Bypass
35	250	500	23E42	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
36	250	500	23E42	MCB240	MOS.5-325		1469-00025	5R5T25	Diode Load Cap. Silver
37	50	500	23E2009-5	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Diode RF Filter Cer.
38	50	500	23E2009-5	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Diode RF Filter Cer.
39	25	500	23E16	MCB220	MOS.5-425	MS-425	1469-00025	5R5Q25	Osc. Grid Cap. Cer.
40A	15	500	23E2019			MS-415			RF Coupling Cer.
B	25	500				MS-425			" " Cer.
41	250	500	23E42	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	RF Coupling
42	100	500	23E11	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	RF Cathode Bypass Cer.
43	50	500	23E2009-5	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	RF Coupling Cer.
44	2000	500	23E52	MC457	MW.5-22	1FM-22	1478-002	1W5D2	Ext. Ant. Isolation
45	10	500	23E15	MCB215	MOS.5-41	MS-41	1469-00001	5R5Q1	Fixed Trimmer Cer.
46	500	500	23E45	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	Filament Bypass
47	1500	500	23E2012-2	MC256	MW.5-215	1FM-215	1478-0015	1W5D15	" " Cer.
105	500	500	23E45	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	" "

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KNIGHT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
48A	2 Meg.	½	28E23	TM251	D18-139X	AT-116	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 48A per instructions
49A	500KΩ	½	28E22	MK401	D13-133	AM-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 49A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA KNIGHT PART No.	REPLACEMENT DATA IRC PART No.	IDENTIFICATION CODES
50	220KΩ	½	27E224	BTS-220K	Red-Red-Yl. Antenna Loading
51	2.2 Meg.	½	27E225	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
52	68Ω	½	27E680	BW-½-68	Blue-Gray-Blk. RF Cathode
53	2200Ω	½	27E222	BTS-2200	Red-Red-Red RF Screen Dropping
54	6800Ω	½	27E682	BTS-6800	Blue-Gray-Red RF Plate Load
55	10Ω	½	27E100	BW-½-10	Br.-Blk.-Blk. Parasitic Suppressor
56	100KΩ	½	27E104	BTS-100K	Br.-Blk.-Yl. Converter Grid
57	1 Meg.	½	27E105	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
58	1000Ω	½	27E102	BTS-1000	Br.-Blk.-Red Parasitic Suppressor
59	22KΩ	½	27E223	BTS-22K	Red-Red-Or. Oscillator Grid
60	1000Ω	½	27E102	BTS-1000	Br.-Blk.-Red Converter Screen Dropping
61	470Ω	½	27E471	BTS-470	Yl.-Vi.-Br. Converter Plate Decoupling
62	470KΩ	½	27E474	BTS-470K	Yl.-Vi.-Yl. AVC Network
63	68Ω	½	27E680	BW-½-68	Blue-Gray-Blk. 1st IF Cathode
64	2200Ω	½	27E222	BTS-2200	Red-Red-Red 1st IF Screen Dropping
65	100KΩ	½	27E104	BTS-100K	Br.-Blk.-Yl. 1st IF Transformer Shunt-See Note 1
66	1 Meg.	½	27E105	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
67	2.2 Meg.	½	27E225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
68	470Ω	½	27E471	BTS-470	Yl.-Vi.-Br. 1st IF Plate Decoupling
69	470KΩ	½	27E474	BTS-470K	Yl.-Vi.-Yl. Diode Load
70	68KΩ	½	27E683	BTS-68K	Blue-Gray-Or. Diode RF Filter
71	100KΩ	½	27E104	BTS-100K	Br.-Blk.-Yl. IF Transformer Shunt-See Note 1
72	68Ω	½	27E680	BW-½-68	Blue-Gray-Blk. 2nd IF Cathode
73	2200Ω	½	27E222	BTS-2200	Red-Red-Red 2nd IF Screen Dropping
74	470Ω	½	27E471	BTS-470	Yl.-Vi.-Br. 2nd IF Plate Decoupling
75	39KΩ	½	27E393	BTS-39K	Or.-White-Or. De-emphasis
76	1 Meg.	½	27E105	BTS-1 Meg.	Br.-Blk.-Grn. Ratio Detector Load
77	68KΩ	½	27E683	BTS-68K	Blue-Gray-Or. Tone Compensation
78	10 Meg.	½	27E106	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
79	470KΩ	½	27E474	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
80	220KΩ	½	27E224	BTS-220K	Red-Red-Yl. AF Plate Decoupling
81	470KΩ	½	27E474	BTS-470K	Yl.-Vi.-Yl. Output Grid
82	180Ω	½	27E181-2	BW-½-180	Br.-Gray-Br. Output Cathode
83	33Ω	1	27E330-3	BW-1-33	Or.-Or.-Blk. Surge Limiter
84	2.2 Meg.	½	27E225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
85	22KΩ	½	27E223	BTS-22K	Red-Red-Or. Diode Load
86	2.2 Meg.	½	27E225	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid

Note 1 - Not used in all models.

FILTER CHOKE

ITEM NO.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA KNIGHT PART NO.	REPLACEMENT DATA STANCOR PART NO.	REPLACEMENT DATA THORDARSON PART NO.	REPLACEMENT DATA MERIT PART No.	INSTALLATION NOTES
87A	.094A	100Ω	1.4 Henries	22E21				
B	.052A	250Ω	1.5 Henries					

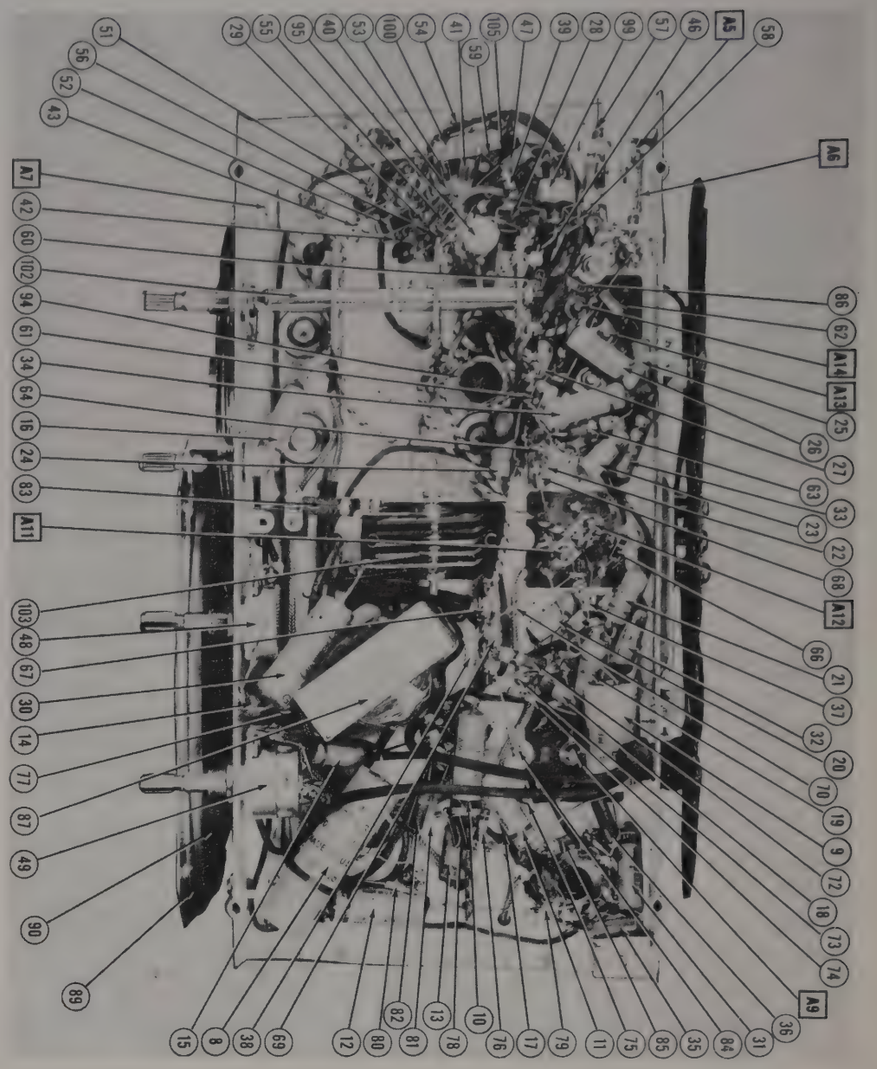
TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA KNIGHT PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.	REPLACEMENT DATA MERIT PART No.	INSTALLATION NOTES
88	3600Ω	3.3Ω	275Ω	.7Ω	22E20	A-3850	T22S46	A-2928	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA KNIGHT PART No.	REPLACEMENT DATA JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
89	PM	3.3Ω	1E25			
	CONE DIA.	VC DIA.				
90	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA KNIGHT PART No.	REPLACEMENT DATA MEISSNER PART No.	
91	Loop Ant.	.1Ω	1Ω	20E242		
92	FM Ant.Coil	.3Ω	0Ω	2E53		
93	FM RF Coil		0Ω	2E54		
94	AM Osc.Coil		6.5Ω	20E238	14-1040	
95	FM Osc.Coil		0Ω	2E51		
96A	AM Input IF	8Ω	8Ω	20E214		Items 96A & 96B in same can.
B	FM Input IF	.5Ω	.5Ω			
97A	AM OutputIF	8Ω	8Ω	20E215		" 97A & 97B " " "
B	FM 2nd IF	.5Ω	.5Ω			
98	Disc.Trans.	.5Ω	.1Ω	20E238		
99	RF Choke		57Ω	2E19		
100	RF Choke		.2Ω	2E47		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA KNIGHT PART No.	REPLACEMENT DATA	INSTALLATION NOTES
101	Bayonet	115-125			40E5		

MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
102	Bandswitch	29E15	
103	Rectifier	57E1	Selenium
104	2 Gang Var. Cap	24E30	15-517 MMF (each section)
A5	Dual Trimmer	24E29	Wave Trap Adj. 3-35 MMF
A6	Dual Trimmer	24E29	BC Osc. Adj. 4-70 MMF
A7	Trimmer	24E3	BC Ant. Adj. 3-35 MMF
A8	"	24E16	BC Osc. Padder 200-600 MMF
A15	"	24E28	FM Osc. Adj. 3-12 MMF
A16	"	24E28	FM RF Adj. 3-12 MMF
A17	"	24E28	FM Ant. Adj. 3-12 MMF
	Dial Scale	36E34	
	Dial Pointer	35E8-2	

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

VOLTAGE READINGS

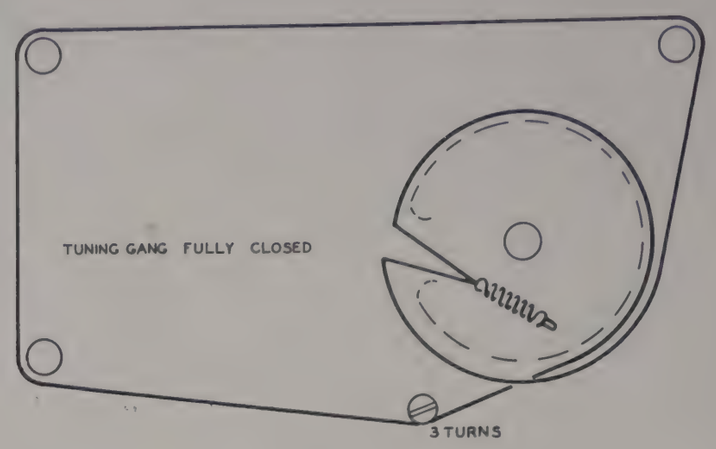
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	12BA6	-.1VDC	0V.	40VAC	27VAC	45VDC	95VDC	.8VDC	-	-
2	12BE6	-5.4VDC§	0V.	27VAC	14VAC	98VDC	103VDC	-.1VDC	-	-
3	12BA6	-.1VDC	0V.	40VAC	52VAC	102VDC	98VDC	.8VDC	-	-
‡ 4	12BA6	-.1VDC	0V.	52VAC	63VAC	95VDC	93VDC	.9VDC	-	-
5	12S8GT	-.5VDC	0V.	-.3VDC	-.3VDC	-.3VDC	48VDC	14VAC	0V.	-.4VDC
6	50B5	0V.	8.4VDC	117VAC	63VAC	103VDC	106VDC	0V.	-	-

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	12BA6	3.5 Meg.	0Ω	31Ω	23Ω	37KΩ	32KΩ	65Ω	-	-
2	12BE6	22KΩ	.6Ω	23Ω	13Ω	30KΩ	31KΩ	530KΩ	-	-
3	12BA6	2.2 Meg.	0Ω	31Ω	38Ω	30KΩ	32KΩ	68Ω	-	-
‡ 4	12BA6	2.6 Meg.	0Ω	38Ω	46Ω	30KΩ	32KΩ	70Ω	-	-
5	12S8GT	440KΩ	0Ω	22KΩ	1 Meg.	1 Meg.	700KΩ	13Ω	0Ω	10 Meg.
6	50B5	500KΩ	180Ω	60Ω	46Ω	30KΩ	30KΩ	500KΩ	-	-

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE

DATE 10/47 SET #27 FOLDER #4717-14

IF=455KC AM
BAND SWITCH SHOWN IN AM POSITION.

IF=10.7MC FM

STAGE GAIN MEASUREMENTS

ANT. TO RF GRID	5X		600KC
RF GRID TO CONV. GRID	10X		600KC
CONV. GAIN	45X	IN	600KC
		OUT	455KC
INPUT IF	1.5X		455KC
IF TUBE	140X		455KC
OUTPUT IF	.5X		455KC
AUDIO	35X		400~
OUTPUT	20X		400~

ALL SWITCH CONTACTS NUMBERED AS SHOWN ABOVE FROM SHAFT END OF SWITCH

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4717-14

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

LAFAYETTE MODEL MC12

TRADE NAME	Lafayette, Model MC12
SUPPLIER	Radio Wire & Television Inc., 100 Ave. of Americas, New York, N.Y.
TYPE SET	AC-DC Operated 3 Band Superheterodyne Receiver
TUBES (SIX)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 12BA6 AF Amp., 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1720KC
RATING	.260 Amp. @ 117 Volts AC
SHORT WAVE	4.3-9.3MC 9.3MC-18MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning slugs in completely and set pointer 2½" from extreme right end of metal dial backplate. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 7 (grid) of 12BE6. Low side to chassis.	455KC	BC (fully counter-clock-wise)	Tuning slugs out complete-ly.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD	High side to ext. ant. lead. Low side to chassis.	1720KC	"	"	"	A5,A6	Adjust for maximum output
3	200MMFD	"	1400KC	"	6¼" from ex-treme right end of metal dial back-plate.	"	A7,A8	" " " "
4	400Ω	"	18.0MC	SW 1 (center position)	Tuning slugs out complete-ly.	"	A9,A10	Adjust for maximum output.
5	"	"	16.0MC	"	6-3/8" from ex-treme right end of metal dial back-plate.	"	A11	" " " "
6	"	"	"	"	"	"	A12	Rock tuning control and adjust for maximum output
7	"	"	9.0MC	SW 2 (fully clock-wise.	Tune for maximum out-put.	"	A13	"

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DATE 10/47 SET #27 FOLDER #4717-15

PARTS LIST AND DESCRIPTIONS

LAF. V377
MODEL NO.

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: LAFAYETTE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SB6	12SB6	7GH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	AF Amp.	12BA6	12BA6	7BK	
5	Power Output	50B5	50B5	7PZ	
6	Rectifier	35W4	35W4	5BC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: LAFAYETTE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	CL-10007	2N520	DSB-5030-150	TA530	PRSA-150-30-50	EZ5515	Filter - Green
B	30	150							" - Red
8	.05	400	CP-14503	TP426	S-4-05	TC-15	484-05	DT4S5	Output Plate Bypass
9	.01	400	CP-14103	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.01	400	CP-14103	TP421	S-4-01	TC-11	484-01	DT4S1	" "
11	.01	400	CP-14103	TP421	S-4-01	TC-11	484-01	DT4S1	" "
12	.05	300	CP-12503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	.1	200	CP-12104	TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supply
14	.05	400	CP-14505	TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
15	200	500	CM-15251	MC237	MO.5-32	1FM-32	1468-00025	5W5T2	AF Plate Bypass Cer.
16	200	500	CM-15251	MC237	MO.5-32	1FM-32	1468-00025	5W5T2	Diode RF Filter Cer.
17	110	500	CM-15101	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Oscillator Grid
18	10	500		MC215	MO.5-41	MS-41	1468-00001	5W5Q1	Antenna Coupling
19	110	500	CM-15101-1	MCB235	MOS.5-31	MS-31	1469-0001	5R5T1	Fixed Trimmer

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LAFAYETTE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500KΩ	½		MR50	D11-133	M-53-S	Volume Control - Later production
B	Shaft			Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch			M26	41	SW-A	" " " " "
20A	1 Meg.	½	VC11105	MR53	D13-137	M-63-Z	Volume Control-early production
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

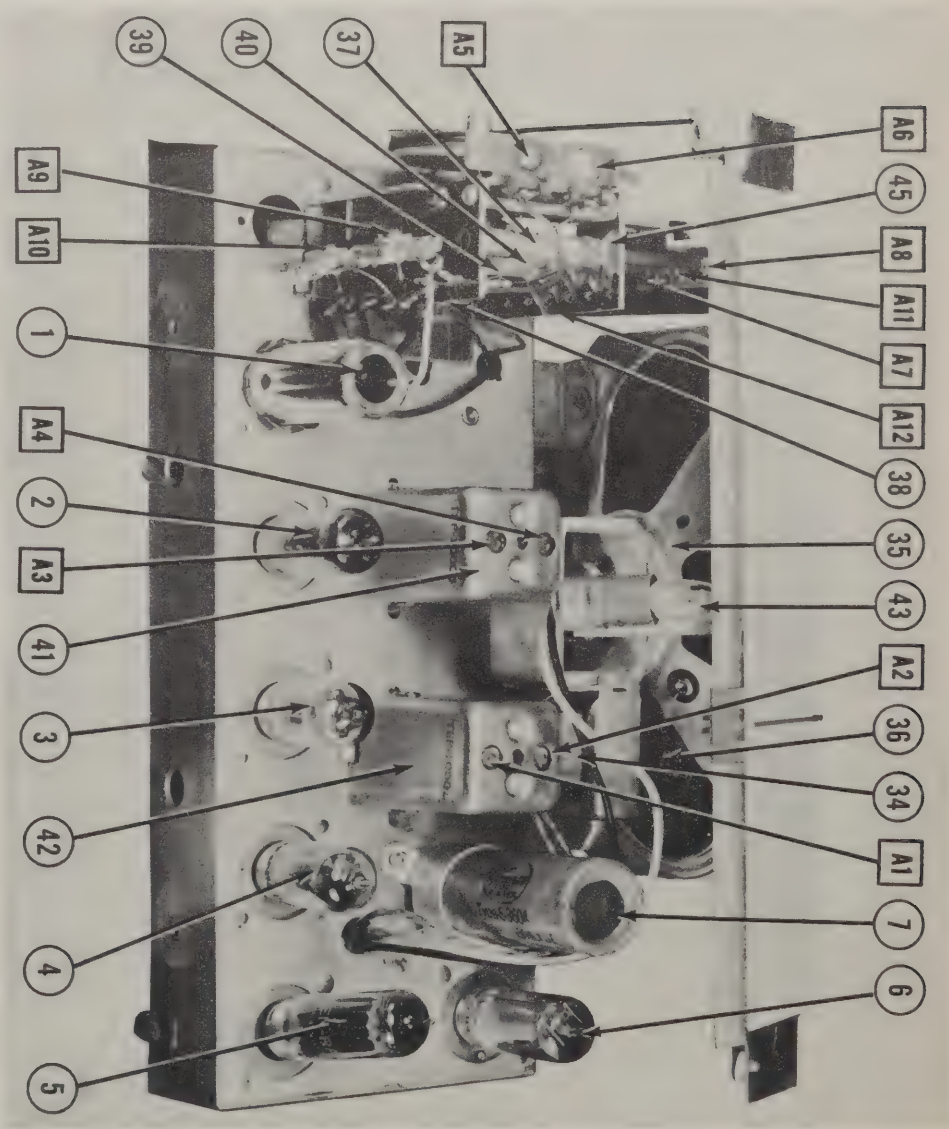
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LAFAYETTE PART No.	IRC PART No.	IDENTIFICATION CODES
21	20KΩ	½	RC-32202	BTS-22K	Red-Blk.-Or. Oscillator Grid
22	2 Meg.	½	RC-32204	BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
23	300Ω	½	RC-33300	BW-½-330	Or.-Blk.-Br. IF Cathode
24	250KΩ	½	RC-32203	BTS-220K	Red-Grn.-Yl. Diode RF Filter
25	10 Meg.	½	RC-31005	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
26	100KΩ	½	RC-31003	BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
27	500KΩ	½	RC-34703	BTS-470K	Grn.-Blk.-Yl. 2nd AF Grid
28	330Ω	½	RC-33300	BW-½-330	Or.-Or.-Br. 2nd AF Cathode
29	6800Ω	½	RC-36801	BTS-6800	Blue-Gray-Red 2nd AF Plate Load
30	500KΩ	½	RC-34703	BTS-470K	Grn.-Blk.-Yl. Output Grid
31	150Ω	½	RC-31500	BW-½-150	Br.-Grn.-Br. Output Cathode
32	1000Ω	1	RC-41001	BTA-1000	Br.-Blk.-Red Filter
33	22Ω	½	RC-30220	BW-½-22	Red-Red-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: LAFAYETTE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
34	1700Ω	3.8Ω	115Ω	.4Ω	TO-10000	A-3865*	T22S45*	A-3925*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA LAFAYETTE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
35	IM	3.2Ω	S0-10002			
	CONE DIA.	VC DIA.				
36	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F ,COILS

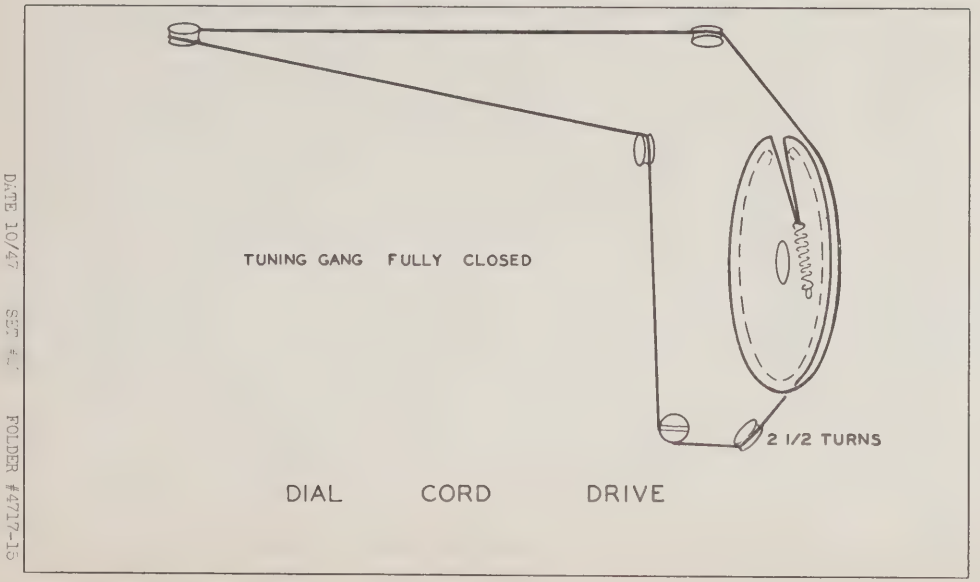
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA LAFAYETTE PART No.	MEISSNER PART No.	
37	BC Ant.Coil		5Ω			Items 37 thru 40 are slug tuned and part of tuner assembly, #VP10004
38	SW Ant.Coil		.2Ω			
39	BC Osc.Coil	1Ω	9Ω			
40	SW Osc.Coil	.2Ω	.2Ω			
41	Input IF	20Ω	20Ω	TS-10000	19-6606	
42	Output IF	1Ω	1Ω	TS-10001	19-6607	

DIAL LIGHT

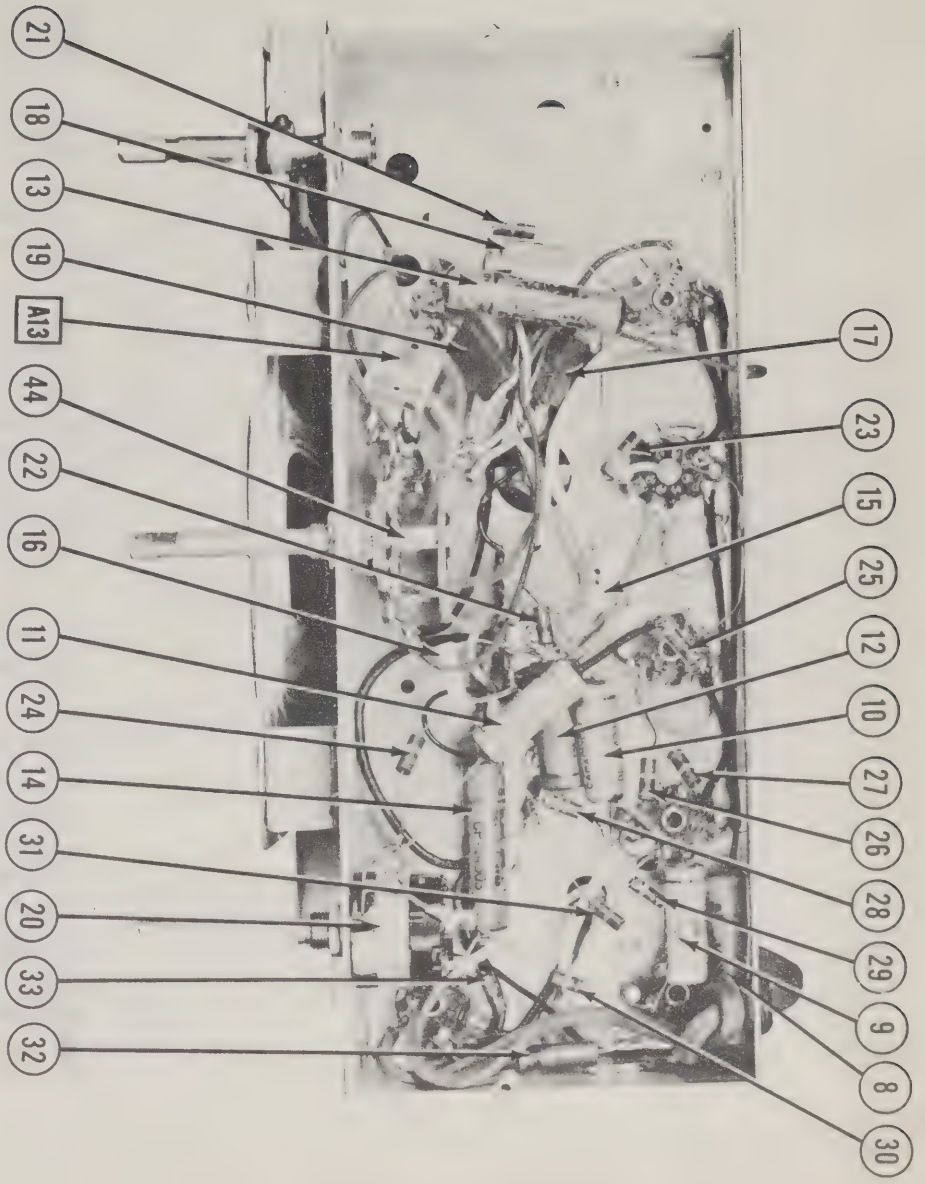
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA LAFAYETTE PART No.		INSTALLATION NOTES
43	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

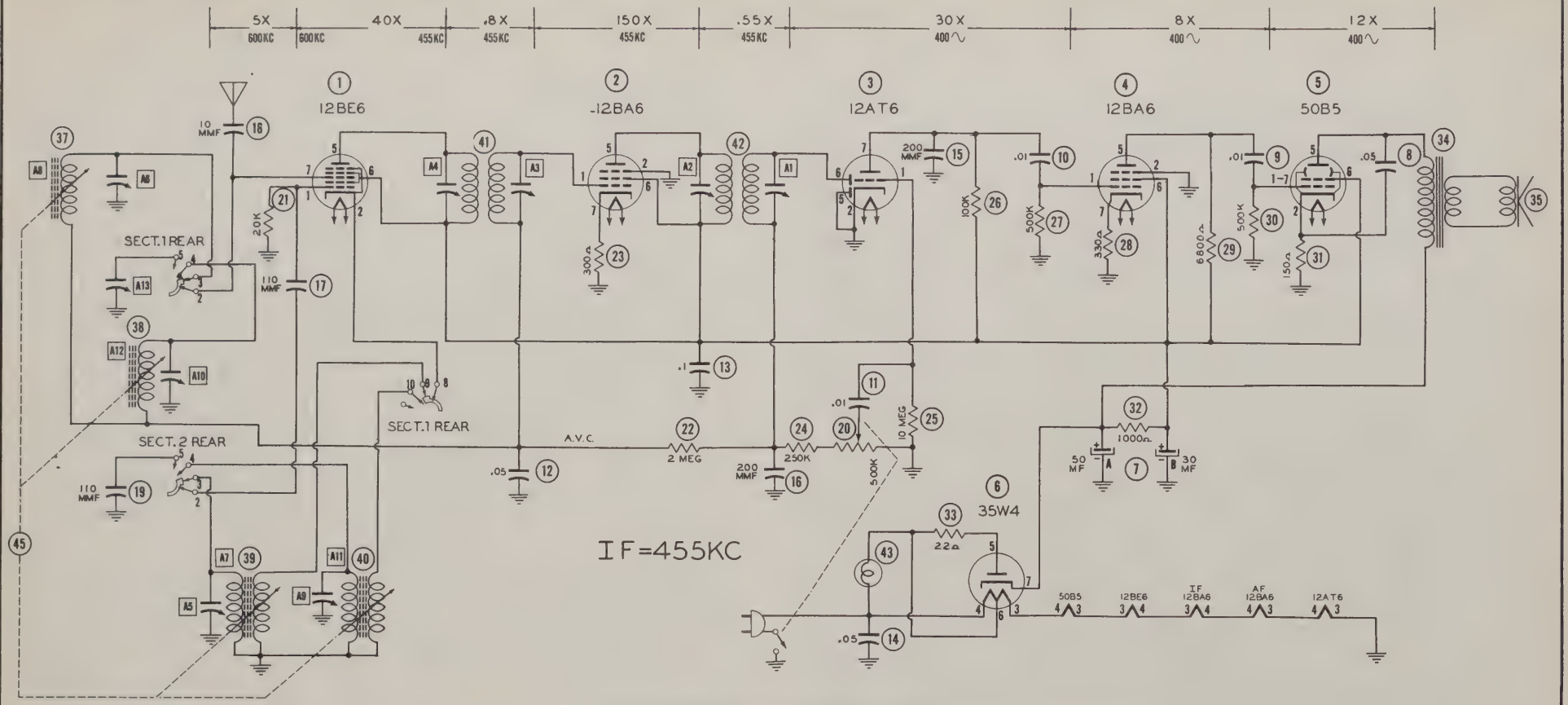
ITEM No.	PART NAME	LAFAYETTE PART No.	NOTES
44	Bandswitch.		
45	Tuner Assby.		



CHASSIS—BOTTOM VIEW



DATE 10/47 SEC. 7 FOLDER #4717-15
LAFAYETTE MODEL MO18



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-0.2VDC§	0V.	46VAC	35VAC	90VDC	90VDC	-.2VDC
2	12BA6	-.2VDC	0V.	35VAC	24VAC	90VDC	90VDC	1.7VDC
3	12AT6	-.3VDC	0V.	0V.	12VAC	0V.	-.5VDC	68VDC
4	12BA6	0V.	0V.	12VAC	24VAC	58VDC	90VDC	2.3VDC
5	50B5	0V.	5.2VDC	46VAC	90VAC	112VDC	90VDC	0V.
6	35W4	117VAC	0V.	90VAC	117VAC	112VAC	113VAC	117VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	20KΩ	1Ω	48Ω	36Ω	90KΩ	90KΩ	3 Meg.
2	12BA6	3 Meg.	0Ω	36Ω	24Ω	90KΩ	90KΩ	300Ω
3	12AT6	10 Meg.	0Ω	0Ω	1Ω	0Ω	700KΩ	190KΩ
4	12BA6	500KΩ	0Ω	1Ω	2Ω	97KΩ	90KΩ	330Ω
5	50B5	500KΩ	15Ω	4Ω	9Ω	.6KΩ	90KΩ	500KΩ
6	35W4	12Ω	INF.	9Ω	12Ω	15Ω	1.2Ω	90KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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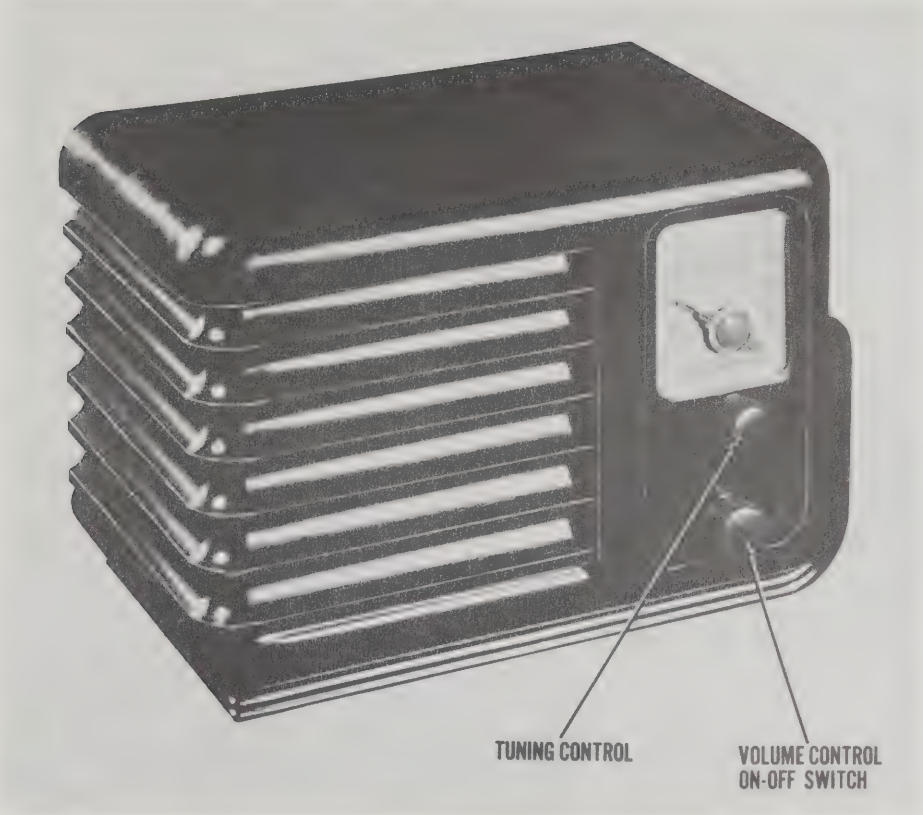
4717-15

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

LAFAYETTE
MODEL MC16



LAFAYETTE
MODEL MC16

LAFAYETTE MODEL MC16

TRADE NAME	Lafayette, Model MC16
SUPPLIER	Radio Wire Television, Inc., 100 Sixth Ave., New York 13, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1700 KC RATING .210 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1500KC	1500KC	"	A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A4	Adjust for maximum output.

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DATE 10/47 SET #27 FOLDER #4717-16

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: LAFAYETTE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: LAFAYETTE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	CL-10007	2N520	DSB-5030-150	TA530	PRSA-150-30-50	EZ5515	Filter - Green
B	30	150							" - Red
6A	30	150		2N513	DSB-2x30-150	TA230	PRSA-150-30-30	EZ3315	" Red-See Note 1
B	20	150							" Blue " " "
7	25	25		TC26	M-25-25	TA25	PRS-25-25	BR25A	Output Cathode Bypass
8	.03	400		TP424	S-4-02	TC13	484-03	DT4S3	Output Plate Bypass
9	.01	400	CPP-12103	TP421	S-4-01	TC11	484-01	DT4S1	Audio Coupling
10	.01	400	CPP-12103	TP421	S-4-01	TC11	484-01	DT4S1	" "
11	.03	400		TP424	S-4-02	TC13	484-03	DT4S3	AVC Filter
12	.01	200		TP421	S-4-01	TC11	484-01	DT4S1	Conv. Cathode Bypass-§
13	.05	400	CPP-14503	TP426	MPH-4-05	TC15	484-05	DT4S5	Line Filter
14	280	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter
15	250	500	CMP-15251	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	IF Coupling
16	47	500		MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid

Note 1 - Alternate filter used on some models.
§ - Not used in all models.

CONTROLS

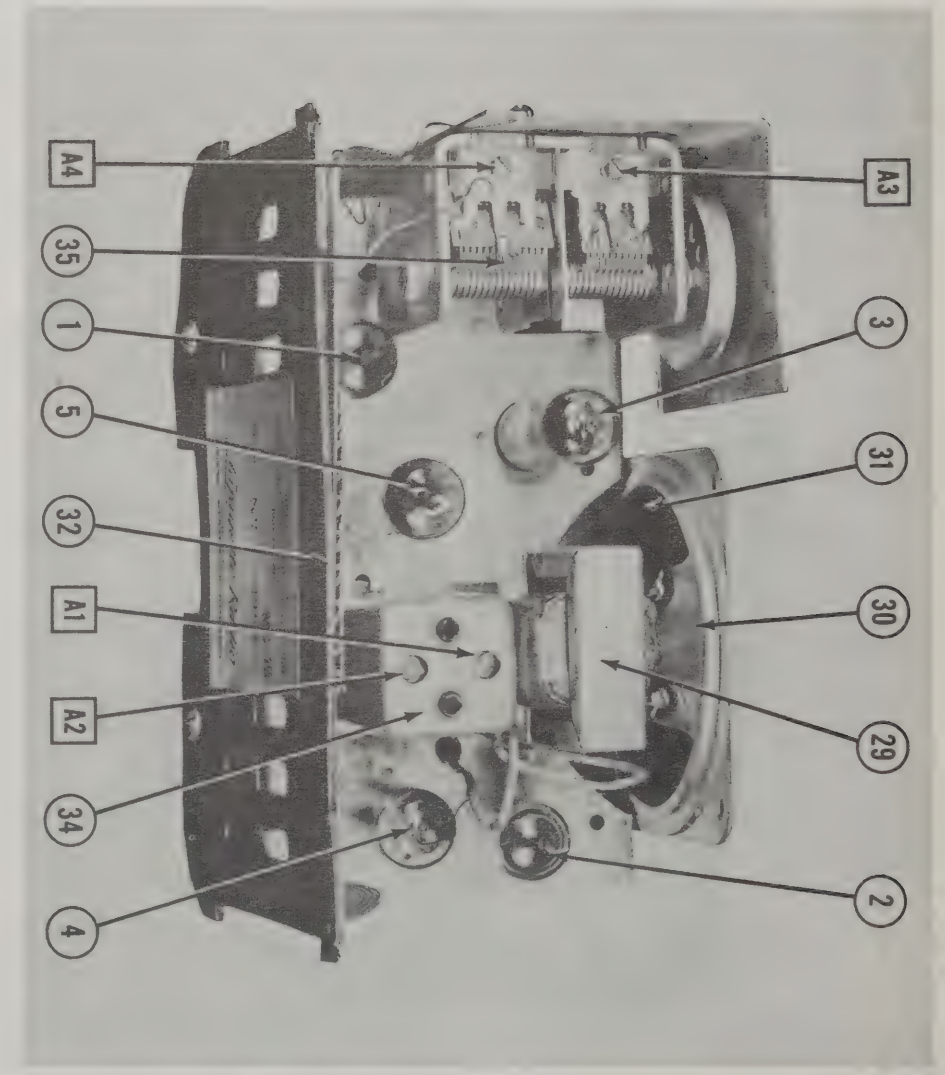
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LAFAYETTE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	½		MR50	D11-133	M-58-8	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 17A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LAFAYETTE PART No.	IRC PART No.	IDENTIFICATION CODES
18	150Ω	½	RCP-31500	BW-½-150	Br.-Grn.-Br. Converter Cathode §
19	10KΩ	½	RCP-31002	BTS-10K	Br.-Blk.-Or. Oscillator Grid
20	2.2 Meg.	½	RCP-32204	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
21	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Diode RF Filter - See Note 2
22	10 Meg.	½	RCP-31005	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
23	220KΩ	½	RCP-32203	BTS-220K	Red-Red-Yl. AF Plate Load
24	470KΩ	½	RCP-34703	BTS-470K	Yl.-Vl.-Yl. Output Grid
25	150Ω	½	RCP-31500	BW-½-150	Br.-Grn.-Br. Output Cathode
26	1000Ω	1	RCP-41001	BTA-1000	Br.-Blk.-Red Filter
27	22Ω	½	RCP-30220	BW-½-22	Red-Red-Blk. Rectifier Ballast
28	6800Ω	½	RCP-36801	BTS-6800	Blue-Gray-Red IF Plate Load

§ - Not used in all models.
Note 2 - Some models use 100KΩ in this application. IRC replacement BTS-100K.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		LAFAYETTE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
29	17000Ω	3.2Ω	115Ω	.4Ω	TO-10000	A-3865*	T22S45*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			LAFAYETTE PART No.	JENSEN PART No.		
30	FIELD PM	VC IMP. 3.2Ω	SO-10005			
31	CONE DIA. 3-3/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

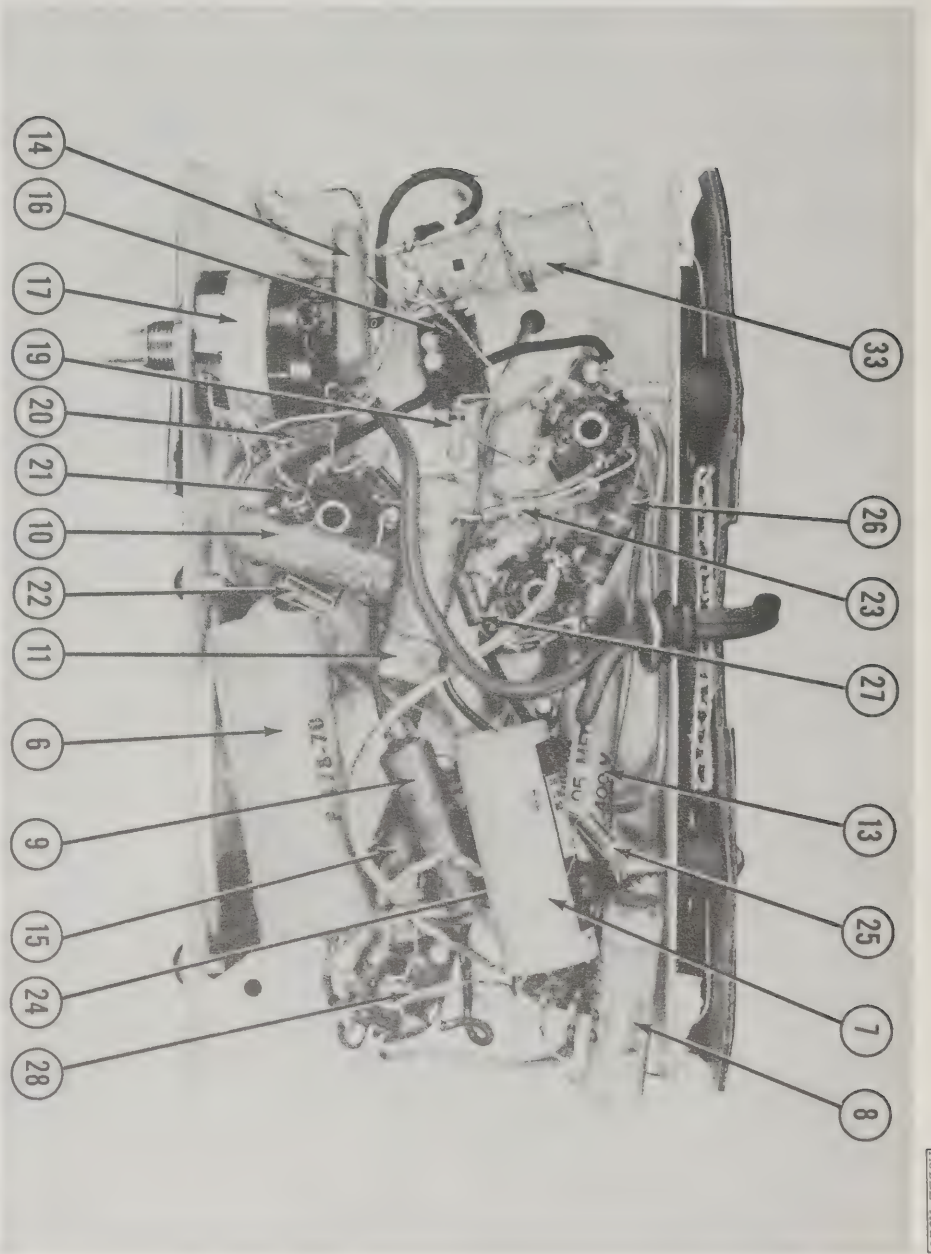
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	LAFAYETTE PART No.	MEISSNER PART No.	
32	Loop Ant.		.3Ω	ALP-10013		
33	Osc. Coil	1.2Ω	6Ω	TRC-10001	14-1040	
34	Input IF	24Ω	24Ω	TSP-10002		

MISCELLANEOUS

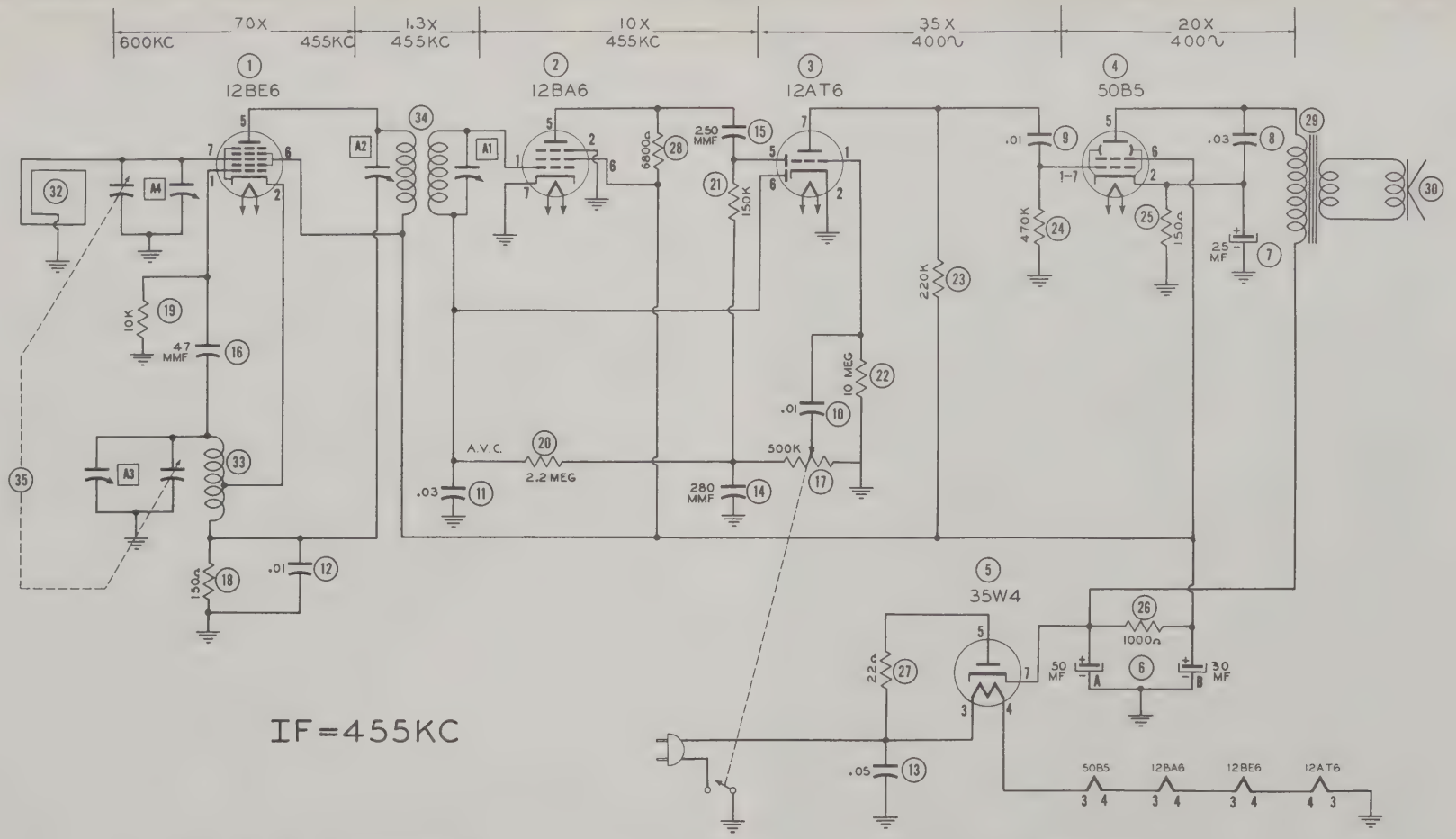
ITEM No.	PART NAME	LAFAYETTE PART No.	NOTES
35	2 Gang Var. Cap.	CV-10008	26-473MMF, 40-226MMF

CHASSIS—BOTTOM VIEW



LAFAYETTE MODEL MO16

LAFAYETTE MODEL MO16



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-7.2VDC§	0V.	24VAC	12VAC	92VDC	92VDC	0V.
2	12BA6	-.6VDC	0V.	36VAC	24VAC	65VDC	92VDC	0V.
3	12AT6	-.6VDC	0V.	0V.	12VAC	-.6VDC	-.6VDC	47VDC
4	50B5	0V.	5.1VDC	83VAC	36VAC	113VDC	92VDC	0V.
5	35W4	117VAC	117VAC	117VAC	83VAC	116VAC	90VAC	120VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	10KΩ	.5Ω	25Ω	14Ω	0MΩ	60KΩ	1.2Ω
2	12BA6	3 Meg.	0Ω	70Ω	25Ω	67KΩ	60KΩ	0Ω
3	12AT6	10 Meg.	0Ω	0Ω	14Ω	58.0KΩ	3 Meg.	2.0KΩ
4	50B5	470KΩ	150Ω	25Ω	30Ω	60KΩ	60KΩ	470KΩ
5	35W4	120Ω	120Ω	120Ω	25Ω	140Ω	70Ω	60KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4717-16

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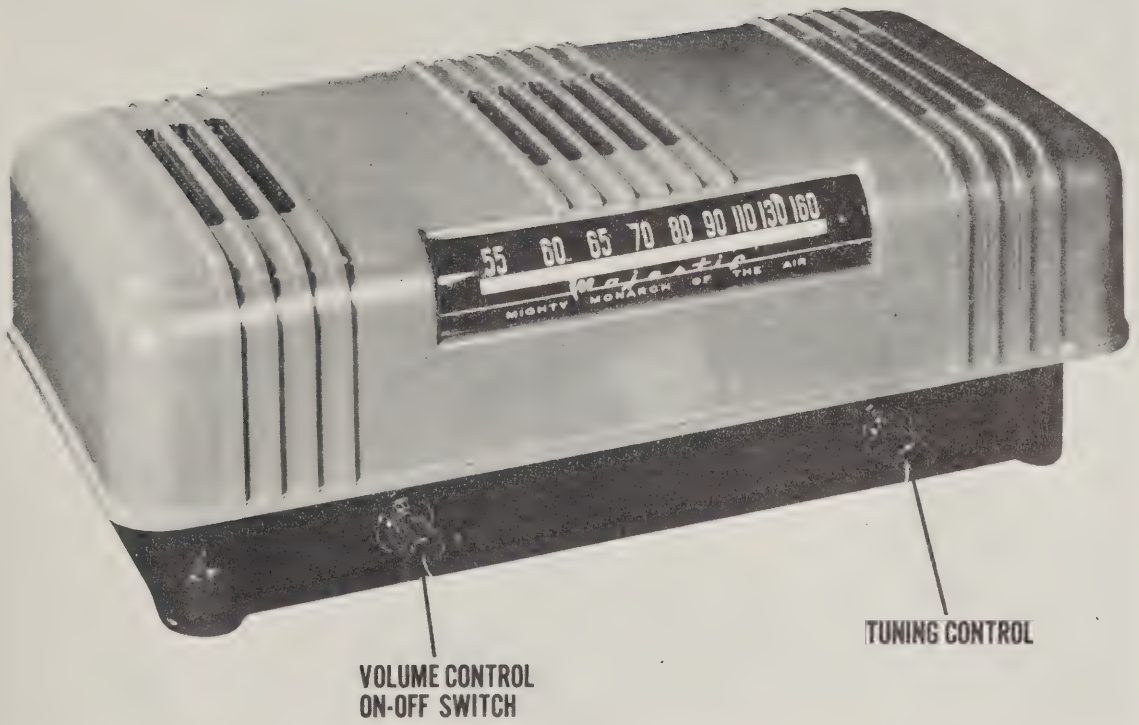
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MAJESTIC MODEL
5AK711



MAJESTIC MODEL
5AK711

MAJESTIC MODEL 5AK711

TRADE NAME	Majestic, Model 5AK711
MANUFACTURER	Majestic Radio & Television Corp., Elgin, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-115 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Volum control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1600KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 10/47 SET #27 FOLDER #4717-17

PARTS LIST AND DESCRIPTIONS

MAJESTIC
MODEL 5AK711

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MAJESTIC PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MAJESTIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	40	150	19-25	FP-306*	DY-4020-150	EL-24	AF84D4A*	UP4215	■ Filter
B	20	150							▲ "
7	.04	400	5-58	TP425	S-6-04	TC-14	484-05	DT4S4	Output Plate Bypass
8	.01	200	5-57	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
9	.002	600	5-52	TP405	S-6-002	TC-22	684-002	DT6D2	" "
10	.01	200	5-57	TP421	S-4-01	TC-11	484-01	DT4S1	Tone Compensation
11	.05	200	5-40	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	.1	200	5-39	TP428	S-4-1	TC-1	484-.1	DT4P1	Isolation
13	.05	200	5-40	TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
14	220	500	6-151	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter
15	220	500	6-151	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass

*Do not use bypass section.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MAJESTIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16	500KΩ	½	13-33				Volume Control & Sw.

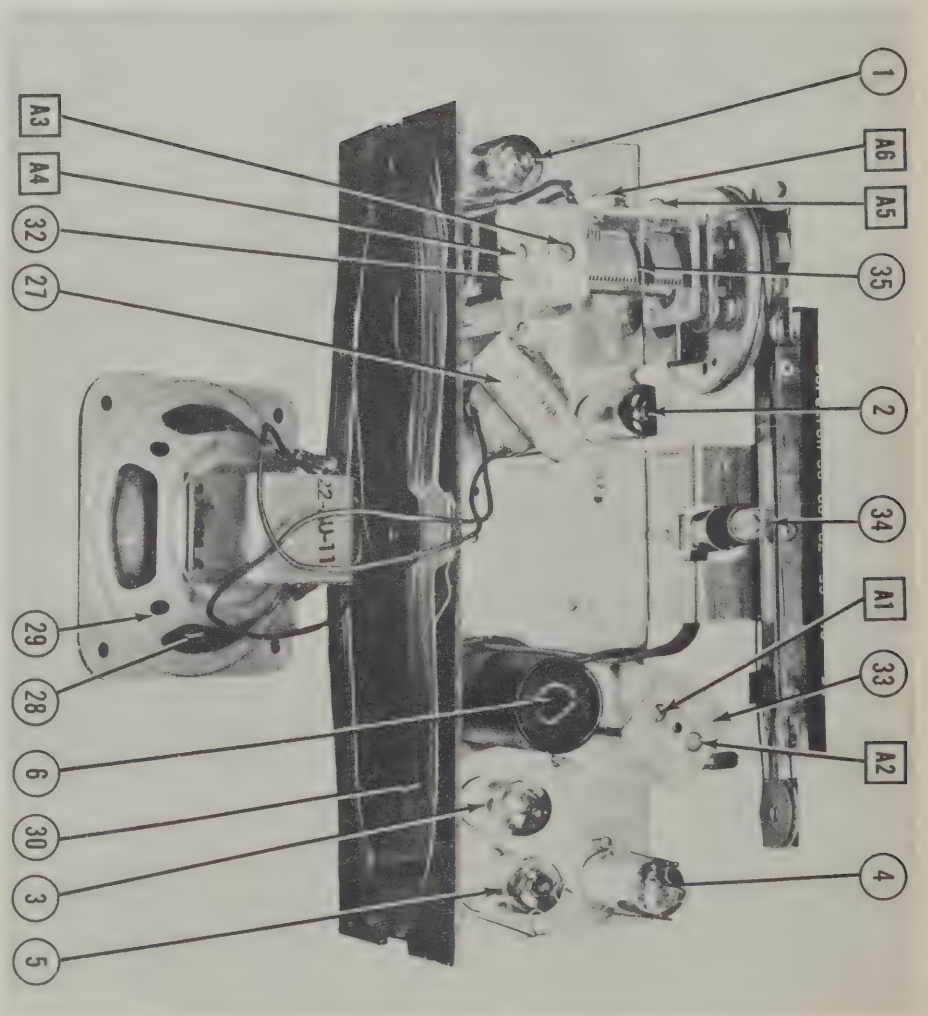
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MAJESTIC PART No.	IRC PART No.	
17	22KΩ	½	01-143	BTS-22K	Red-Red-Or. Oscillator Grid
18	3.3 Meg.	½	01-243	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
19	22KΩ	½	01-143	BTS-22K	Red-Red-Grn. Diode RF Filter
20	10 Meg.	½	01-255	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
21	330KΩ	½	02-192	BTS-330K	Or.-Or.-Yl. AF Plate Load
22	470KΩ	½	01-199	BTS-470K	Yl.-Vi.-Yl. Output Grid
23	150Ω	1	03-52	BW-1-150	Br.-Grn.-Br. Output Cathode
24	1200Ω	1	03-90	BTA-1200	Br.-Red-Red Filter
25	27Ω	½	01-20	BW-½-27	Red-Vi.-Blk. Rectifier Ballast
26	18KΩ	½	01-139	BTS-18K	Br.-Gray-Or. Tone Compensation

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MAJESTIC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
27	2400Ω	4.0Ω	220Ω tapped @ 13Ω	.8Ω	2-20	A-3876*		A-2823*	*Add extra filter to reduce hum level.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: MAJESTIC PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
28	PM	4.0Ω	22-11			
	CONE DIA.	VC DIA.				
29	3-3/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

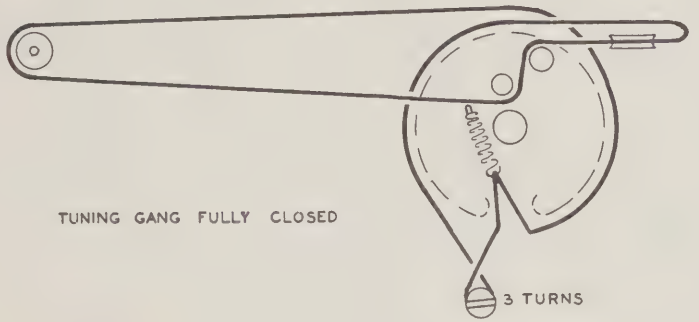
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: MAJESTIC PART No.	MEISSNER PART No.	
30	Loop Ant.		1.2Ω	S-1347		
31	Osc. Coil	1Ω	5.5Ω	S-1348		Add 50 MMFD from grid to high side of tuning cap.
32	Input IF	26Ω	17Ω	S-161	16-6666	
33	Output IF	21Ω	20Ω	S-193	16-6667	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: MAJESTIC PART No.		INSTALLATION NOTES
34	Bayonet	6-8	0.15	Brown	26-2		Type 47

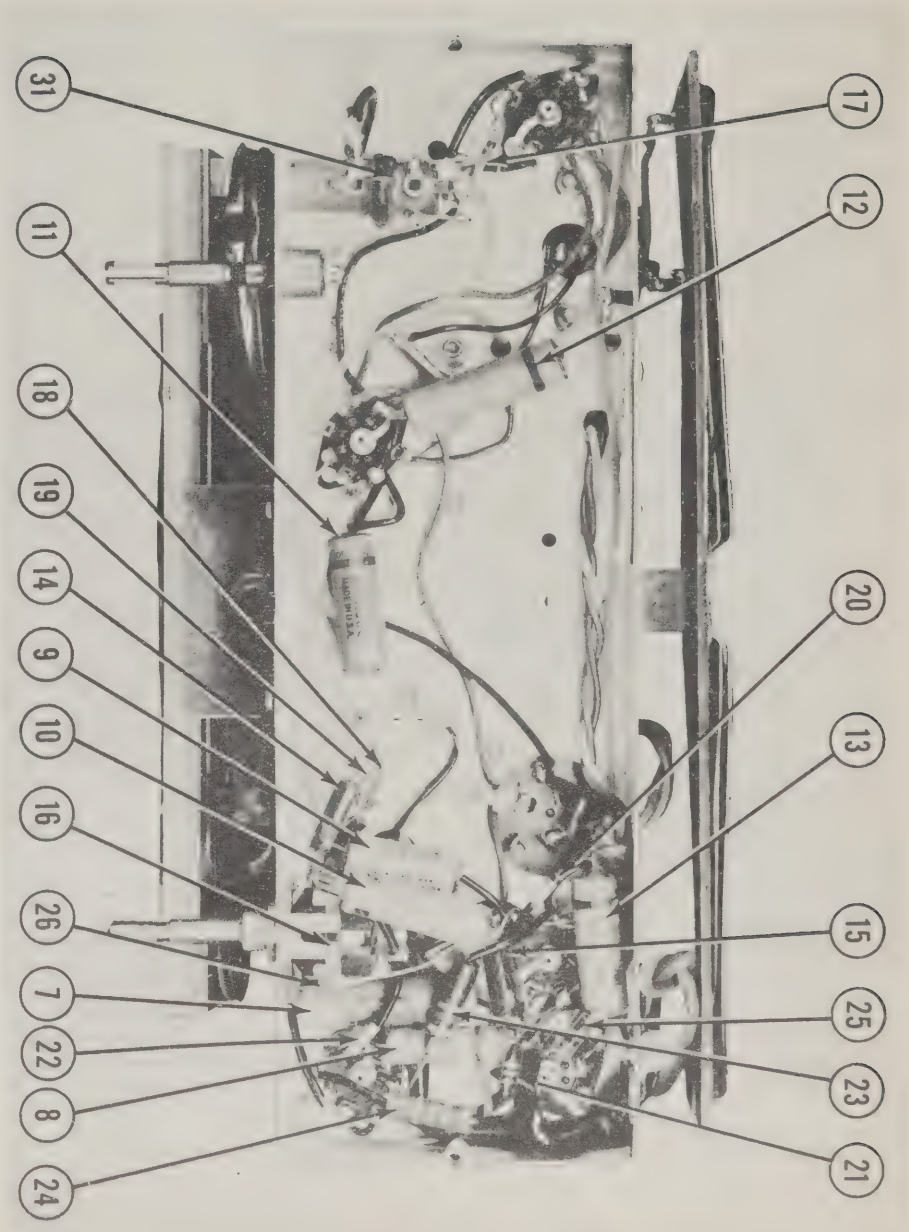
MISCELLANEOUS

ITEM No.	PART NAME	MAJESTIC PART No.	NOTES
35	2 Gang Var. Cap	7-15 or 7-31	30-445 MMF, 36-197 MMF

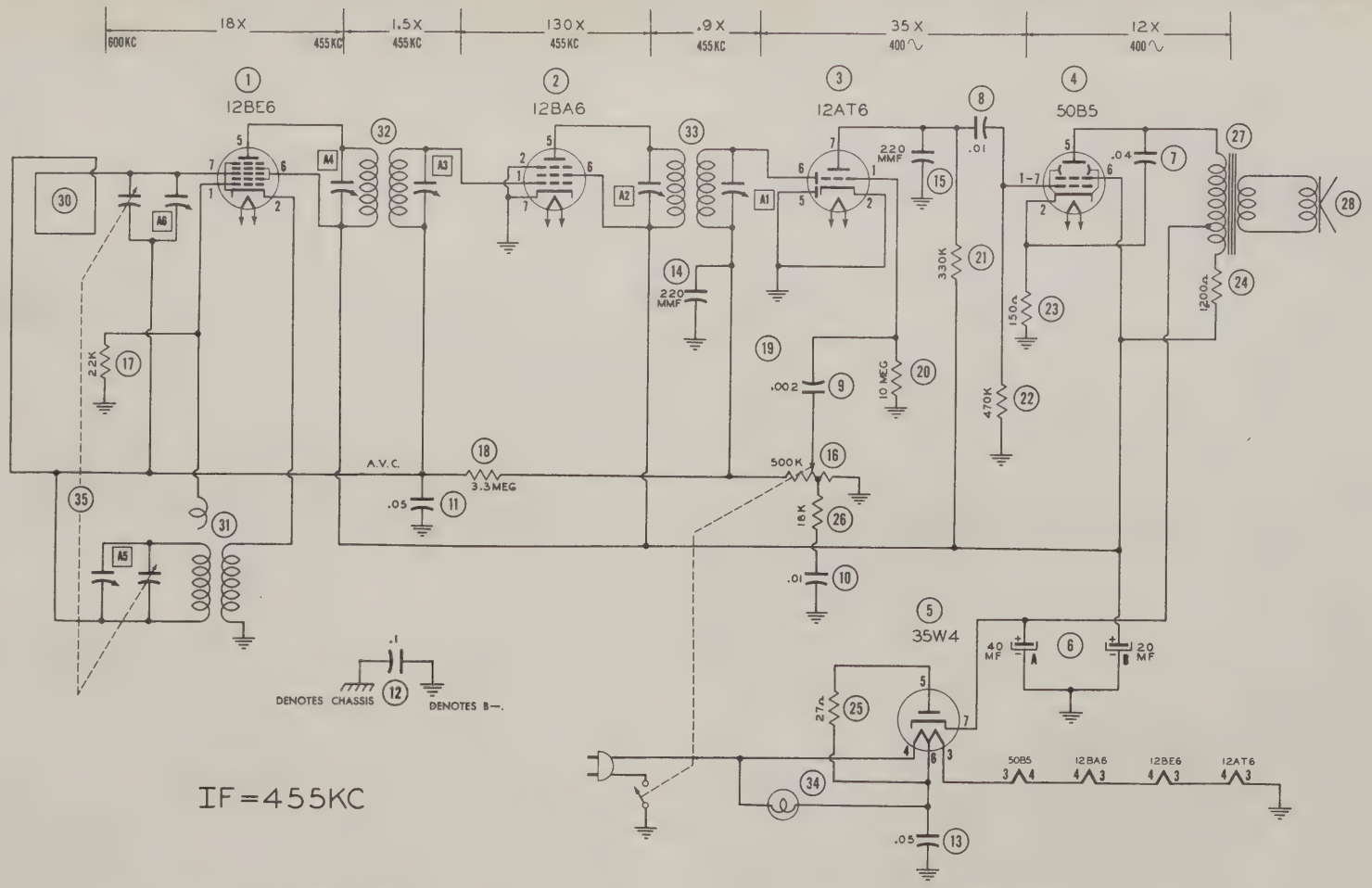


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



DATE 10/47 SET #27 FOLDER #4717-17



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-8.7VDC§	0V.	12VAC	24VAC	82VDC	82VDC	-.8VDC
2	12BA6	-.8VDC	0V.	24VAC	37VAC	82VDC	82VDC	0V.
3	12AT6	-.6VDC	0V.	0V.	12VAC	0V.	-.5VDC	41VDC
4	50B5	0V.	4.9VDC	85VAC	37VAC	108VDC	82VDC	0V.
5	35W4	117VDC	87VDC	85VAC	117VAC	110VAC	112VAC	117VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	22KΩ	1Ω	12Ω	23Ω	100KΩ	100KΩ	3.8 Meg.
2	12BA6	3.8 Meg.	0Ω	23Ω	34Ω	100KΩ	100KΩ	0Ω
3	12AT6	10 Meg.	0Ω	0Ω	12Ω	0Ω	510KΩ	430KΩ
4	50B5	460KΩ	150Ω	80Ω	34Ω	100KΩ	100KΩ	460KΩ
5	35W4	100KΩ	100KΩ	80Ω	110Ω	130Ω	105Ω	100KΩ

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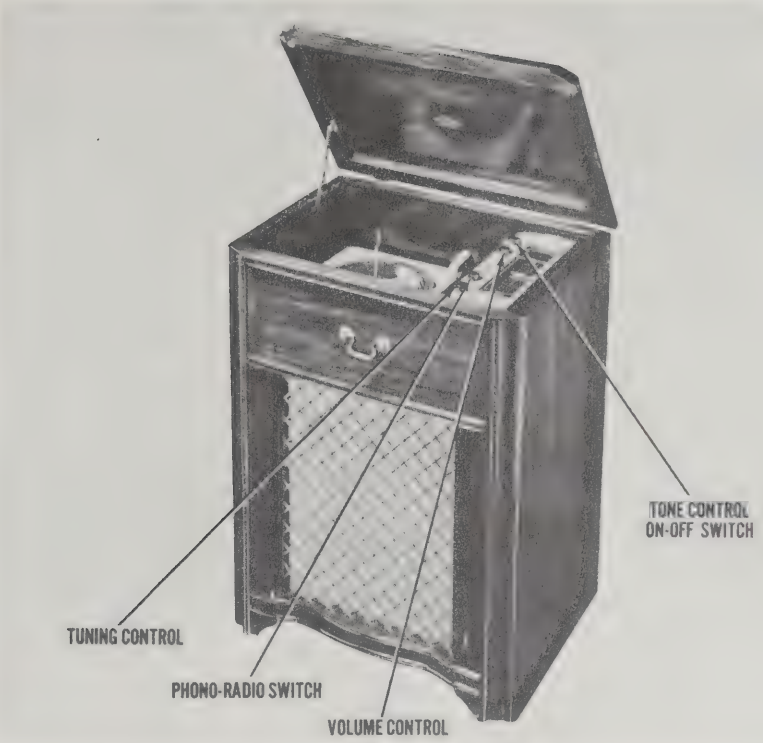
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4717-17

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

MAJESTIC MODEL
7JK777R (Ch. 4708R)



MAJESTIC MODEL 7JK777R

TRADE NAME	Majestic, Model 7JK777R (Ch. 4708R)
MANUFACTURER	Majestic Radio & Tele. Corp., Elgin, Ill.
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne with Loop Antenna
TUBES (SEVEN)	Types, 6SA7 Mixer, 6J5 Oscillator, 6SK7 IF Amp., 6H6 Det.-AVC, 6SQ7GT AF Amp., 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1620KC RATING .500 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer to last reference mark at low freq. end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05 MFD	High side to Pin 8 (grid) 6SA7. Low side to chassis.	455KC	600KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2		Loop	1500KC	1500KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	"	Tune for maximum output.	"	A6	Adjust for maximum output.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove speaker plugs from speaker.
3. Remove phono-pickup plug from chassis.
4. Remove phono-motor plug from chassis.
5. Remove loop antenna leads from chassis.
6. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
7. Remove two Phillips head screws holding loop in cabinet. Remove loop from cabinet.
8. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

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DATE 10/47 SET #27 FOLDER #4717-18

PARTS LIST AND DESCRIPTIONS

MAJESTIC MODEL 7JK77R (Ch. #4708R)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mixer	6SA7	6SA7	8R	
2	Osc.	6J5	6J5	6Q	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC	6H6	6H6	7Q	
5	AF Amp.	6SQ7GT	6SQ7GT	8Q	
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAJESTIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	30	400	19-26	FP390†	DY-312	EL322	AF22J4A	UP-15D1-45†	Filter ■
B	10	400					PRS450-20	"	" ▲
C	20	25		TC26				BR202A	Output Cathode Bypass
9	.005	600	5-61	TP408	S-6-005	TC-25	684-005	DT6D5	Output Plate Bypass
10	.003	200	015-3	TP406	S-6-003	TC-23	484-003	DT6D3	Tone Comp.
11	.01	400	6-132	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
12	.01	200	5-57	TP421	S-4-01	TC-11	484-01	DT4S1	" "
13	.05	200	5-40	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	.1	200	5-39	TP428	S-4-1	TC-1	484-.1	DT4P1	IF Cathode Bypass
15	.05	600	5-77	TP415	S-6-05	TC-15	684-05	DT6S5	Screen Bypass
16	220	500	6-151	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	AF Plate Bypass
17	220	500	6-151	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Diode RF Filter

†Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAJESTIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	500KΩ	½	13-19	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 18A per instructions
19A	200KΩ	½	14-6	MK400	D13-130	AM-64-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 19A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

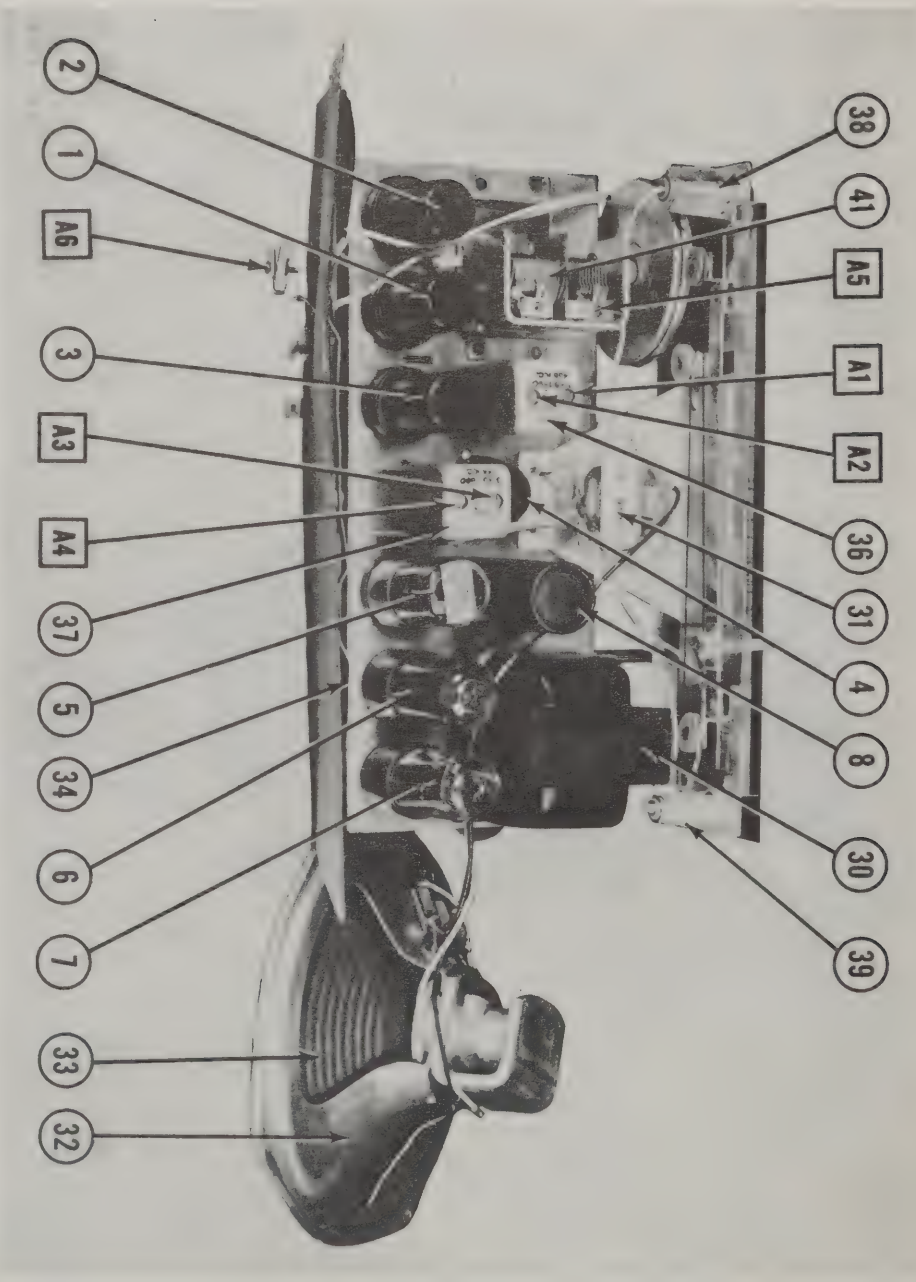
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAJESTIC PART No.	IRC PART No.	IDENTIFICATION CODES
20	22KΩ	½	01-143	BTS-22K	Red-Red-Or. Oscillator Grid
21	220Ω	½	01-159	BW-½-220	Red-Red-Br. IF Cathode
22	22KΩ	1	03-143	BTA-22K	Red-Red-Or. Screen Dropping
23	3.3 Meg.	½	01-234	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
24	47KΩ	½	01-157	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
25	10 Meg.	½	01-255	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	470KΩ	½	02-199	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
27	470KΩ	½	01-199	BTS-470K	Yl.-Vi.-Yl. Output Grid
28	330Ω	1	03-65	BW-1-330	Or.-Or.-Br. Output Cathode
29	1000Ω	1	03-87	BTA-1000	Br.-Blk.-Red Filter

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: MAJESTIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
30	117V AC	540V CT @ .05A	5.0V AC @ 1.8A	6.4V AC @ 2.2A	2-16	P-6113*	T22R30	P-7160‡

*Mount vertically with universal mounting brackets.
‡Add series resistor to reduce plate voltage.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MAJESTIC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
31	4900Ω	3.5Ω	320Ω tapped @ 14Ω	.75Ω	12-26	A-3877#		A-2930#	#Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MAJESTIC PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-115		
32	PM	3.5Ω	22-30	Mod. P8-V		
	CONE DIA.	VC DIA.				
33	7-3/8"	1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

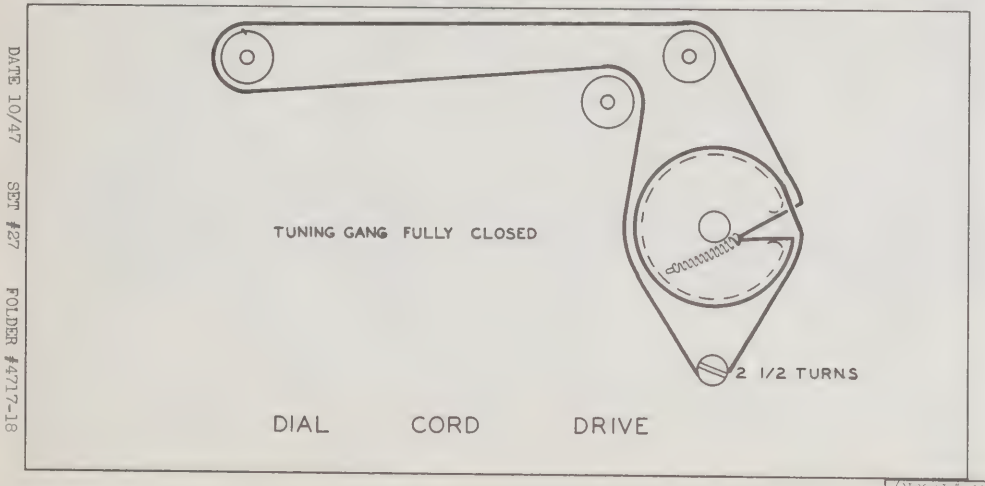
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MAJESTIC PART No.	MEISSNER PART No.	
34	Loop Ant.	.1Ω	1.2Ω	S1466		
35	Osc. Coil		5.5Ω	3-158	14-1040	Add 50 MMFD from grid to high side tuning cap.
36	Input IF	21Ω	21Ω	3-159	16-6666	
37	Output IF	24Ω	23Ω	3-160	16-6667	

DIAL LIGHT

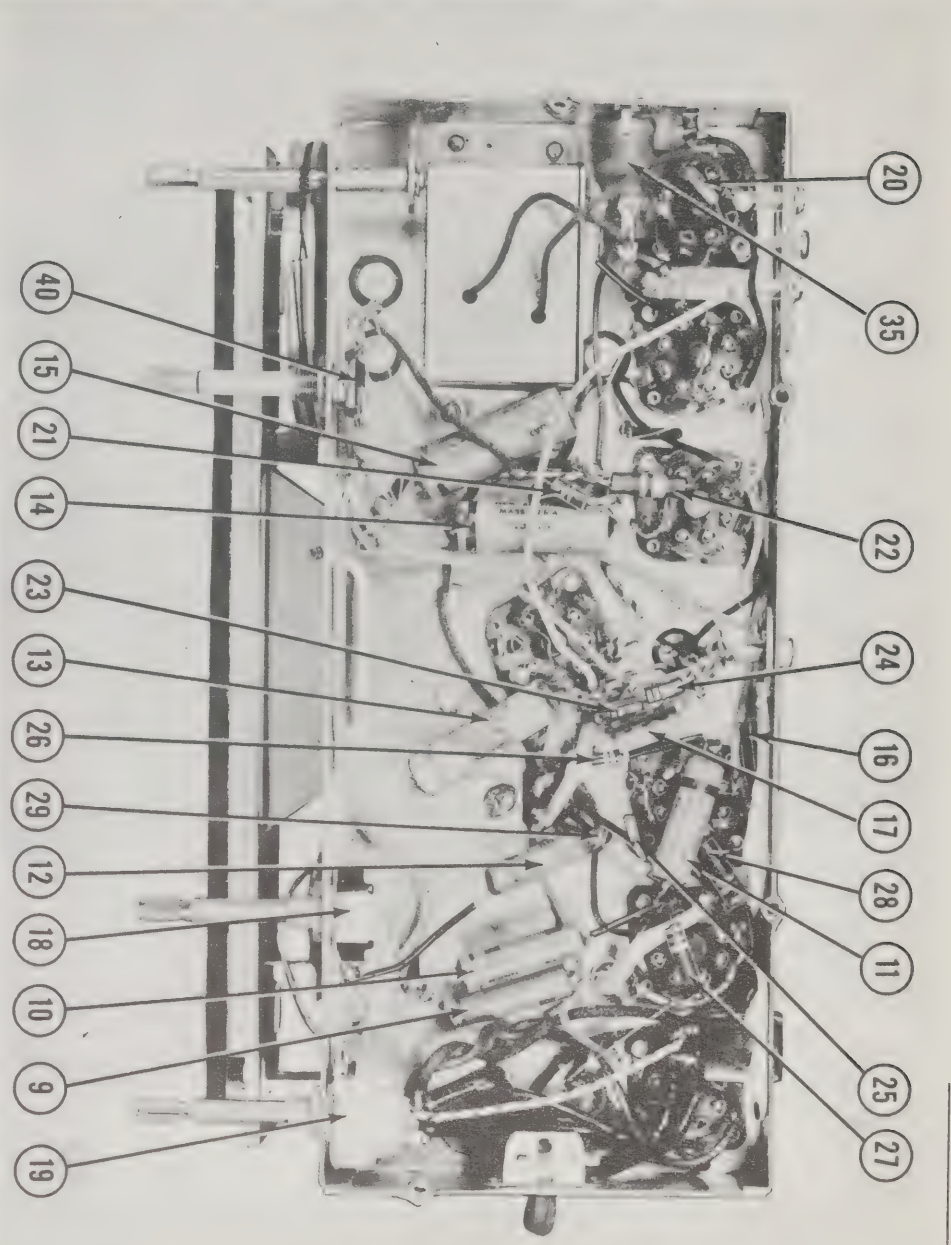
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MAJESTIC PART No.		
38	Bayonet	6-8	0.15	Brown	26-2		Type 47
39	"	"	"	"	26-2		"

MISCELLANEOUS

ITEM No.	PART NAME	MAJESTIC PART No.	NOTES
40	Switch	11-52	Radio-Phono
41	2 Gang Var. Cap.	7-28	21-459 MMF, 28-192 MMF
	Dial Scale	117-95	
	Dial Pointer	135-22	

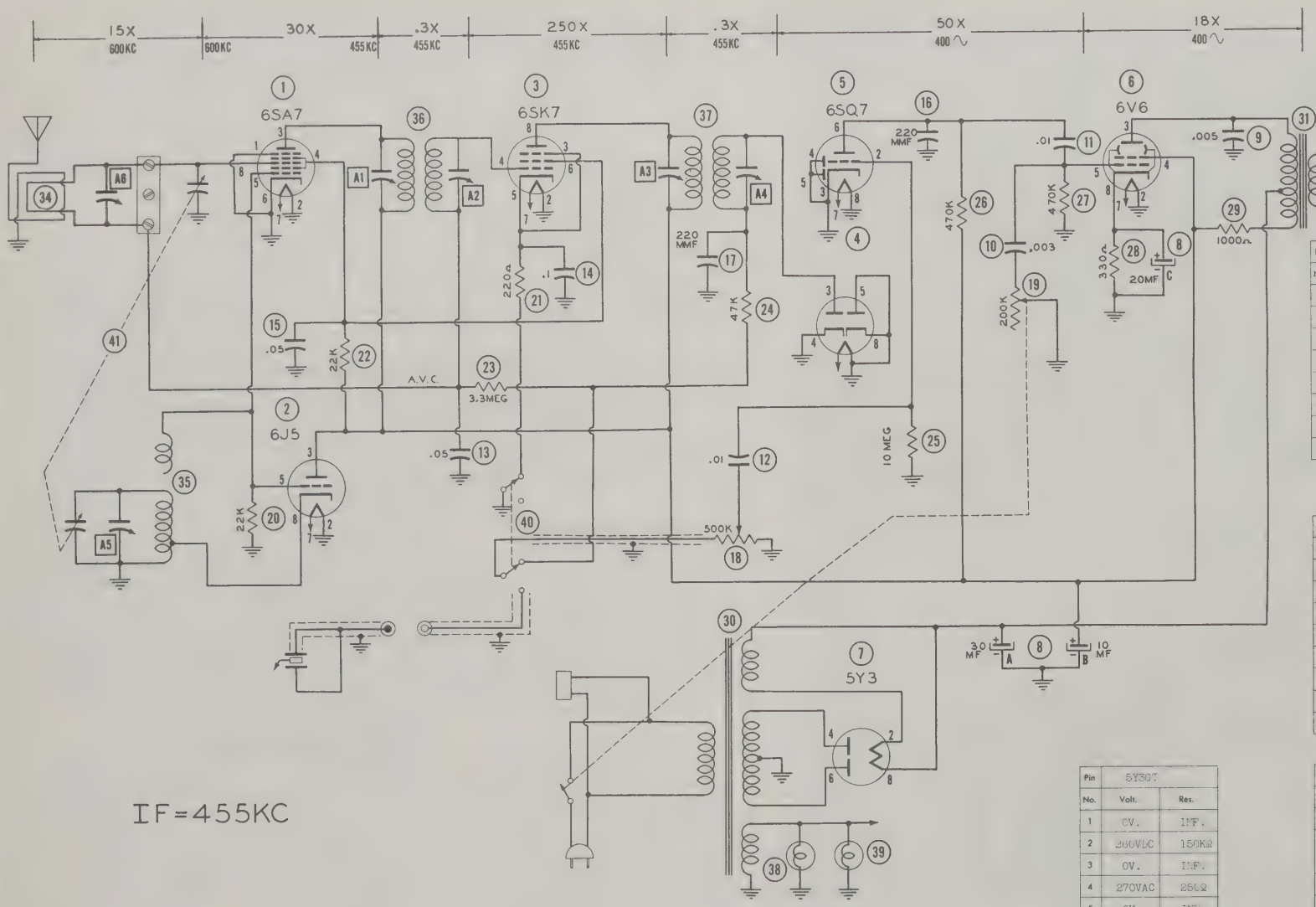


CHASSIS—BOTTOM VIEW



DATE 10/47 SET #27 FOLDER #4717-18

MAJESTIC MODEL 7JK77R (Ch. #4706R)



Pin No.	6SA7 Volt.	6SA7 Res.	6J5 Volt.	6J5 Res.
1	0V.	0Ω	0V.	0Ω
2	0V.	0Ω	0V.	0Ω
3	230VDC	150KΩ	230VDC	150KΩ
4	70VDC	170KΩ	0V.	INF.
5	-15VDC§	22KΩ	-15VDC§	22KΩ
6	0V.	0Ω	0V.	INF.
7	6.4VAC	.1Ω	6.4VAC	.1Ω
8	-.6VDC	4 Meg.	0V.	.8Ω

Pin No.	6SK7 Volt.	6SK7 Res.	6H6 Volt.	6H6 Res.
1	0V.	0Ω	0V.	INF.
2	0V.	0Ω	6.4VAC	.1Ω
3	1.4VDC	220Ω	-.8VDC	570KΩ
4	-.6VDC	4 Meg.	0V.	0Ω
5	1.4VDC	220Ω	0V.	0Ω
6	70VDC	170KΩ	0V.	INF.
7	6.4VAC	.1Ω	0V.	0Ω
8	230VDC	150KΩ	0V.	0Ω

Pin No.	5Y3GT Volt.	5Y3GT Res.
1	0V.	INF.
2	260VDC	150KΩ
3	0V.	INF.
4	270VAC	26Ω
5	0V.	INF.
6	270VAC	27Ω
7	0V.	INF.
8	360VDC	150KΩ

Pin No.	6SQ7GT Volt.	6SQ7GT Res.	6V6GT Volt.	6V6GT Res.
1	0V.	0Ω	0V.	0Ω
2	-.7VDC	10 Meg.	0V.	0Ω
3	0V.	0Ω	250VDC	150KΩ
4	0V.	0Ω	230VDC	150KΩ
5	0V.	0Ω	0V.	500KΩ
6	90VDC	620KΩ	280VDC	150KΩ
7	6.4VAC	.1Ω	6.4VAC	.1Ω
8	0V.	0Ω	13VDC	300Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

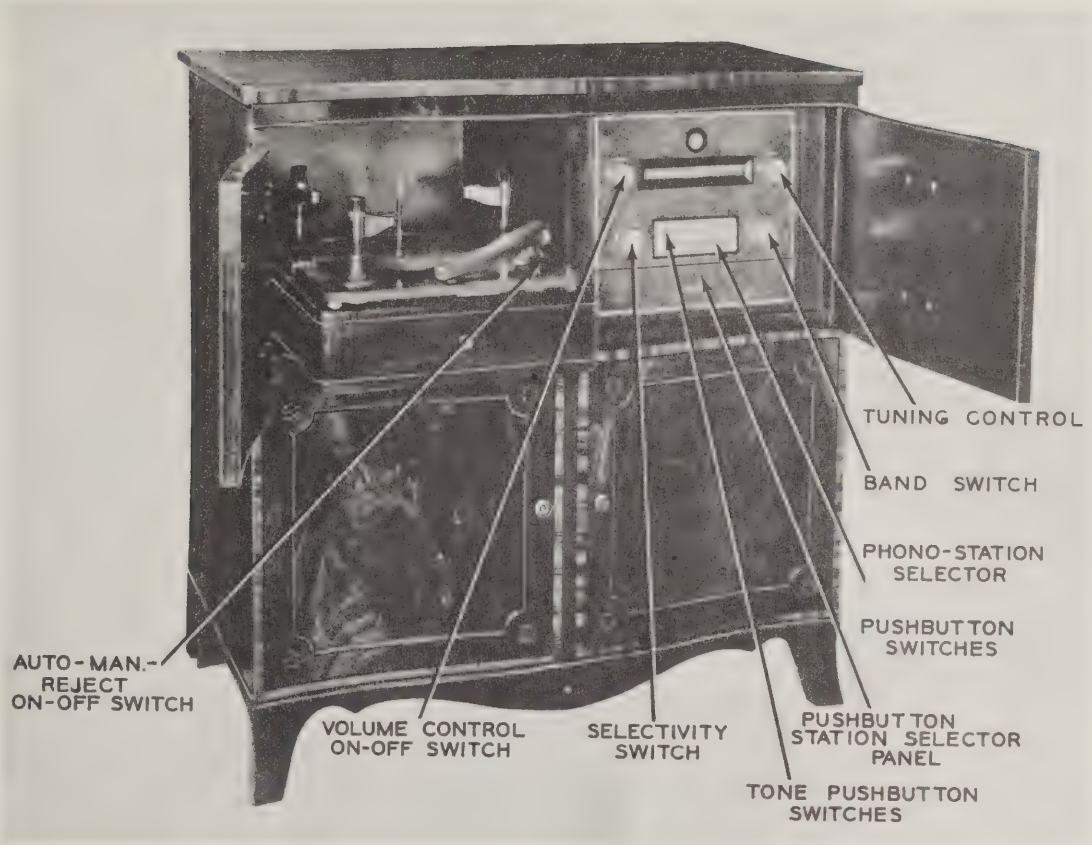
4717-18

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MEISSNER MODEL
2961 SERIES

MEISSNER MODEL PAGE 1
2961 SERIES

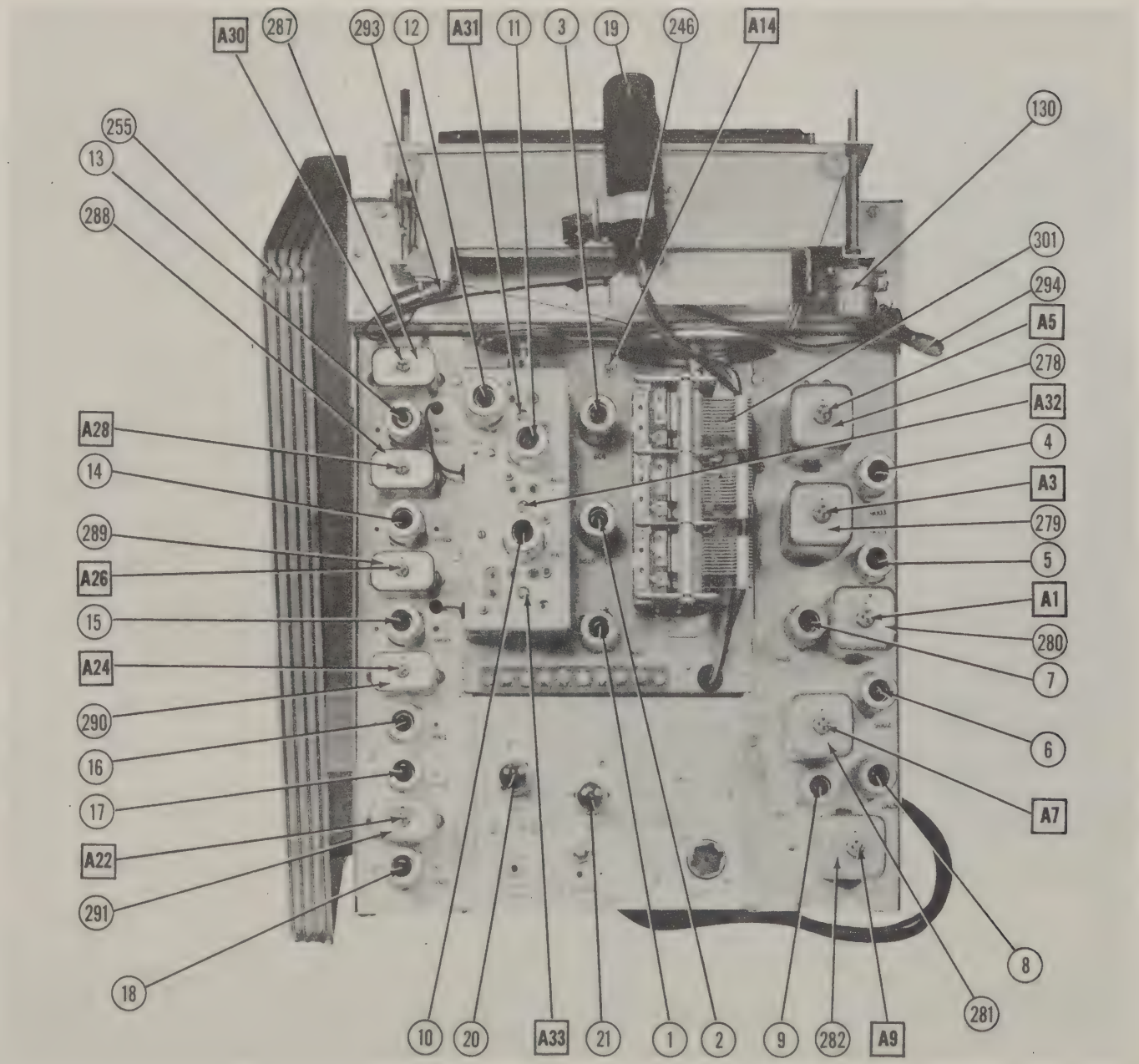


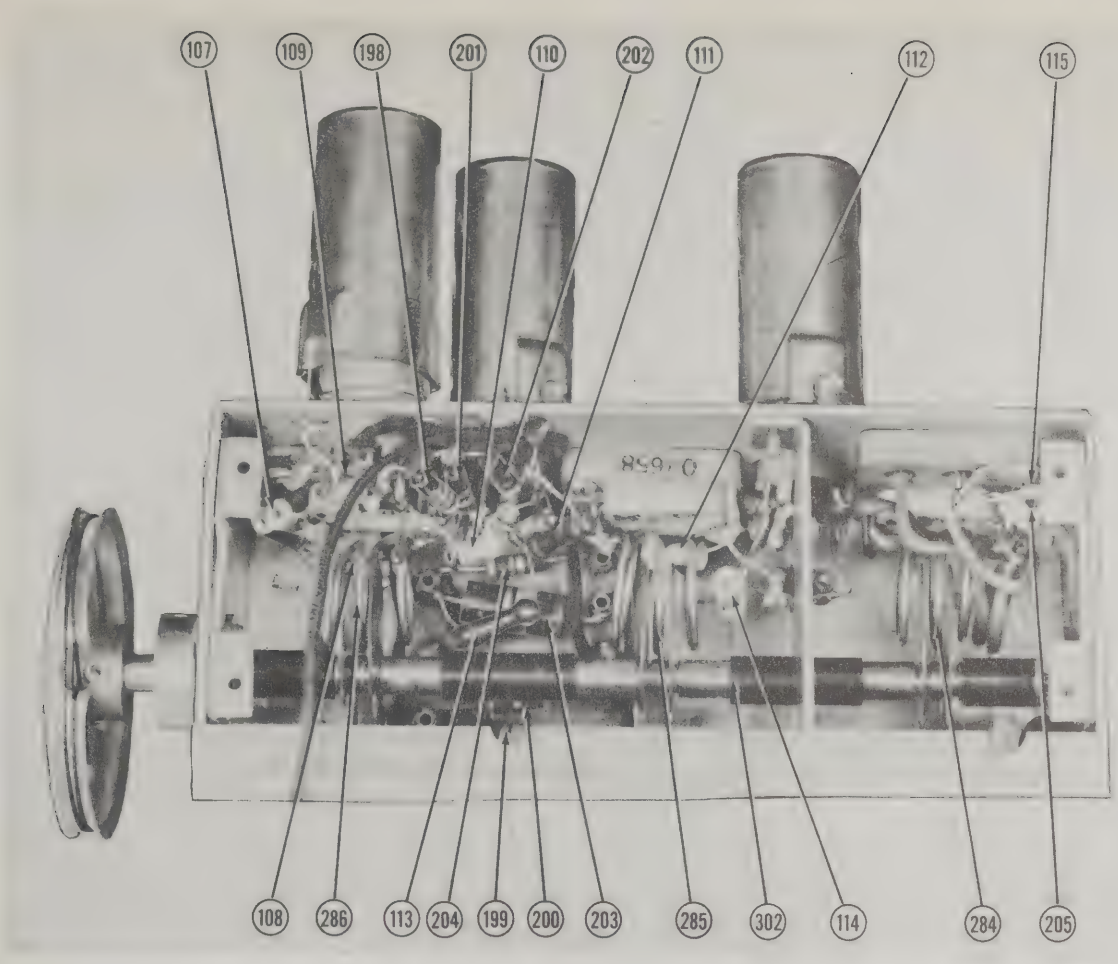
TRADE NAME	Meissner, Model 2961 Series
MANUFACTURER	Meissner Mfg. Div., Maguire Ind., Inc., Mt. Carnel, Ill.
TYPE SET	AC Operated FM-AM Radio-Phono Combination Superheterodyne Receiver With Loop Antenna and Pushbutton Tuning.
TUBES	(TWENTY NINE) Types, 9003 AM RF Amp., 6BE6 AM Mixer, 6C4 AM Osc., 9003 AM 1st IF Amp., 9003 AM-2nd IF Amp., 9002 AM Det., 6AG5 AM AVC Amp., 6AL5 AM AVC-Tuning Eye Rect., 9003 AM Tuning Eye Amp., 6AG5 FM RF Amp., 6AG5 FM Mixer, 6C4 FM Osc., 6AG5 FM 1st IF Amp., 6AG5 FM 2nd IF Amp., 6AG5 FM 3rd IF Amp., 9001 FM 1st Limiter, 9001 FM 2nd Limiter, 6AL5 Discriminator, 6U5/6G5 Tuning Eye, 9002 Phono Amp., 9002 1st AF Amp., 6J5GT Phase Inv., 6SN7GT Driver, (4) 6L6GA Power Output, 5Y3G Rectifier, 5Y4G Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	1.8 Amp. @ 117 Volts AC
TUNING RANGE	- BROADCAST 535-1620KC, SHORT WAVE 9.2-12.2MC, 14.4-18.4MC, FM 88-108MC.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

CHASSIS—TOP VIEW

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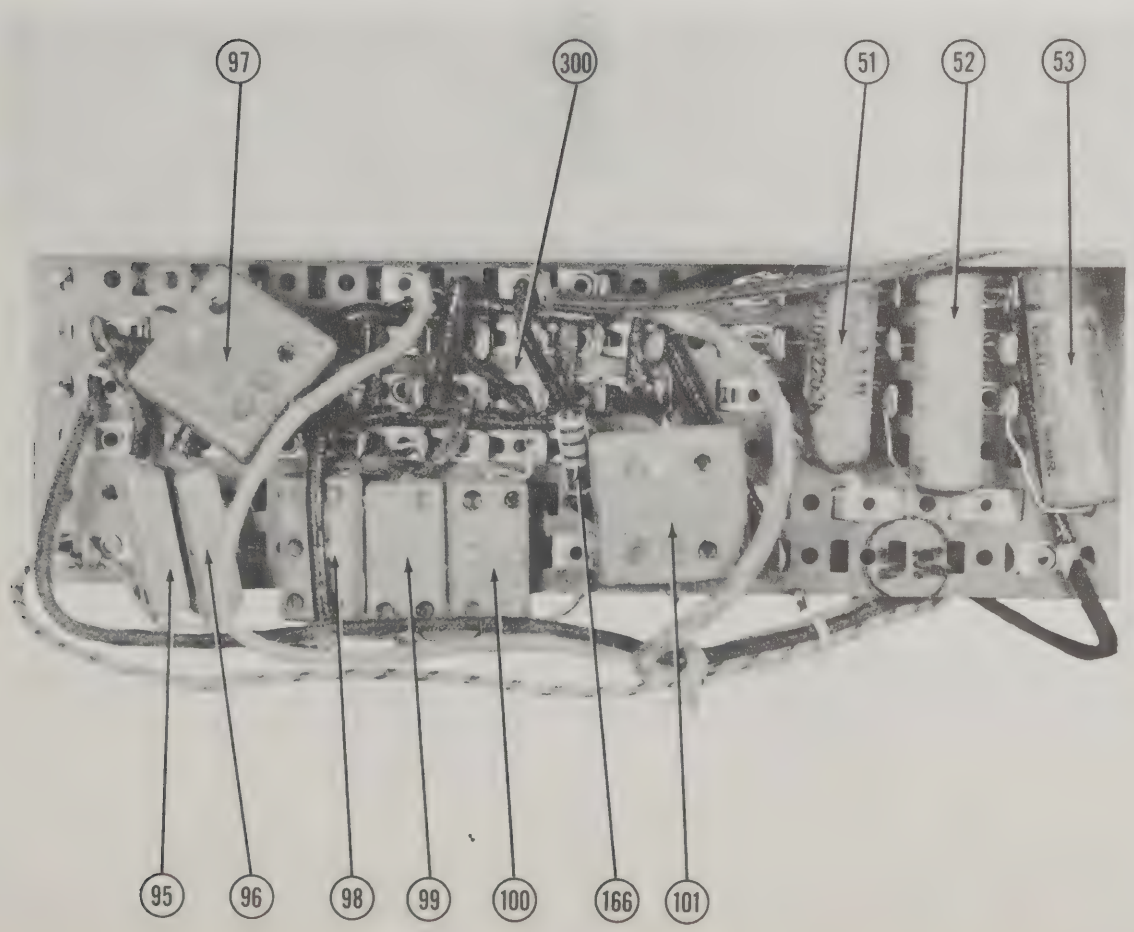
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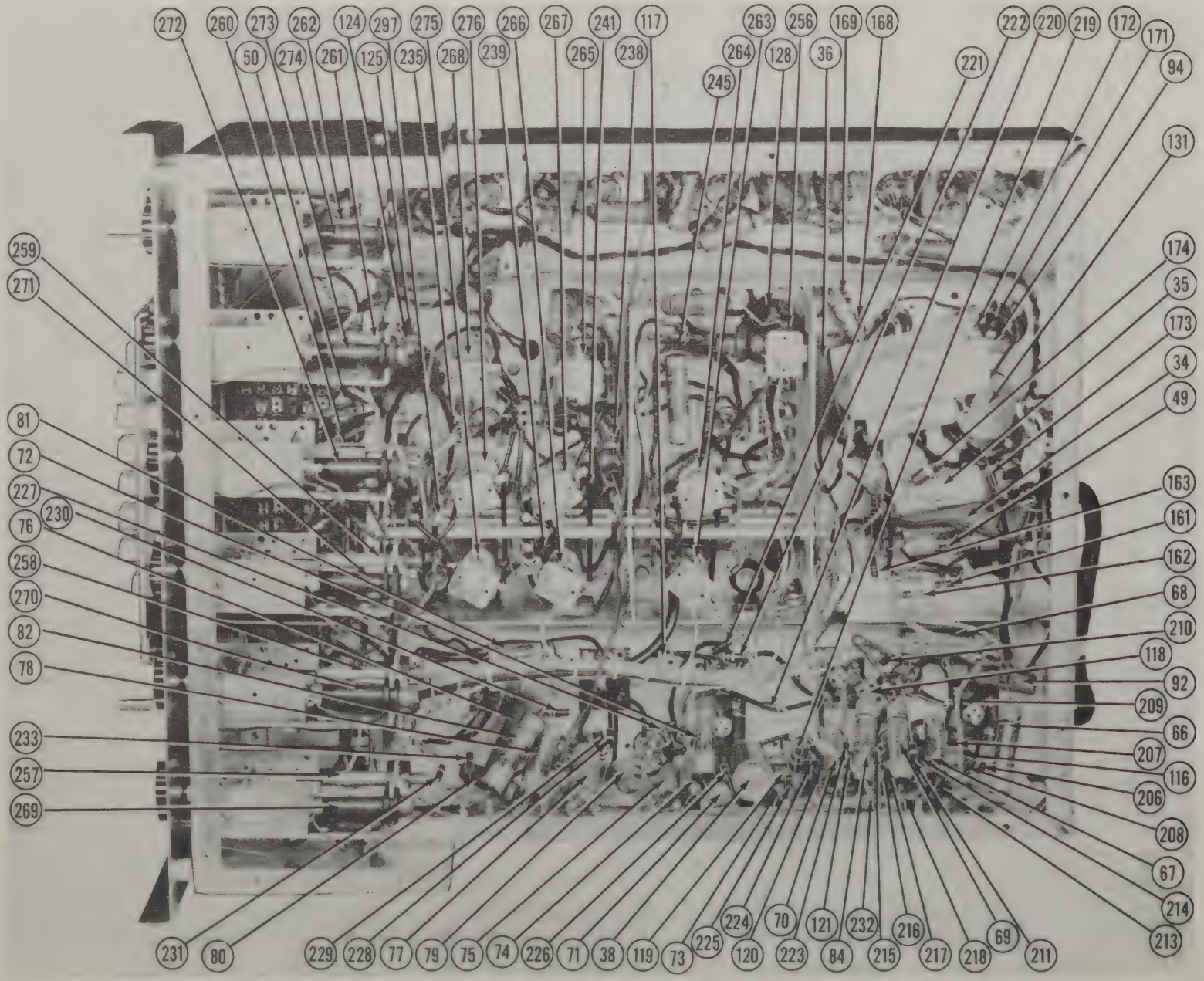
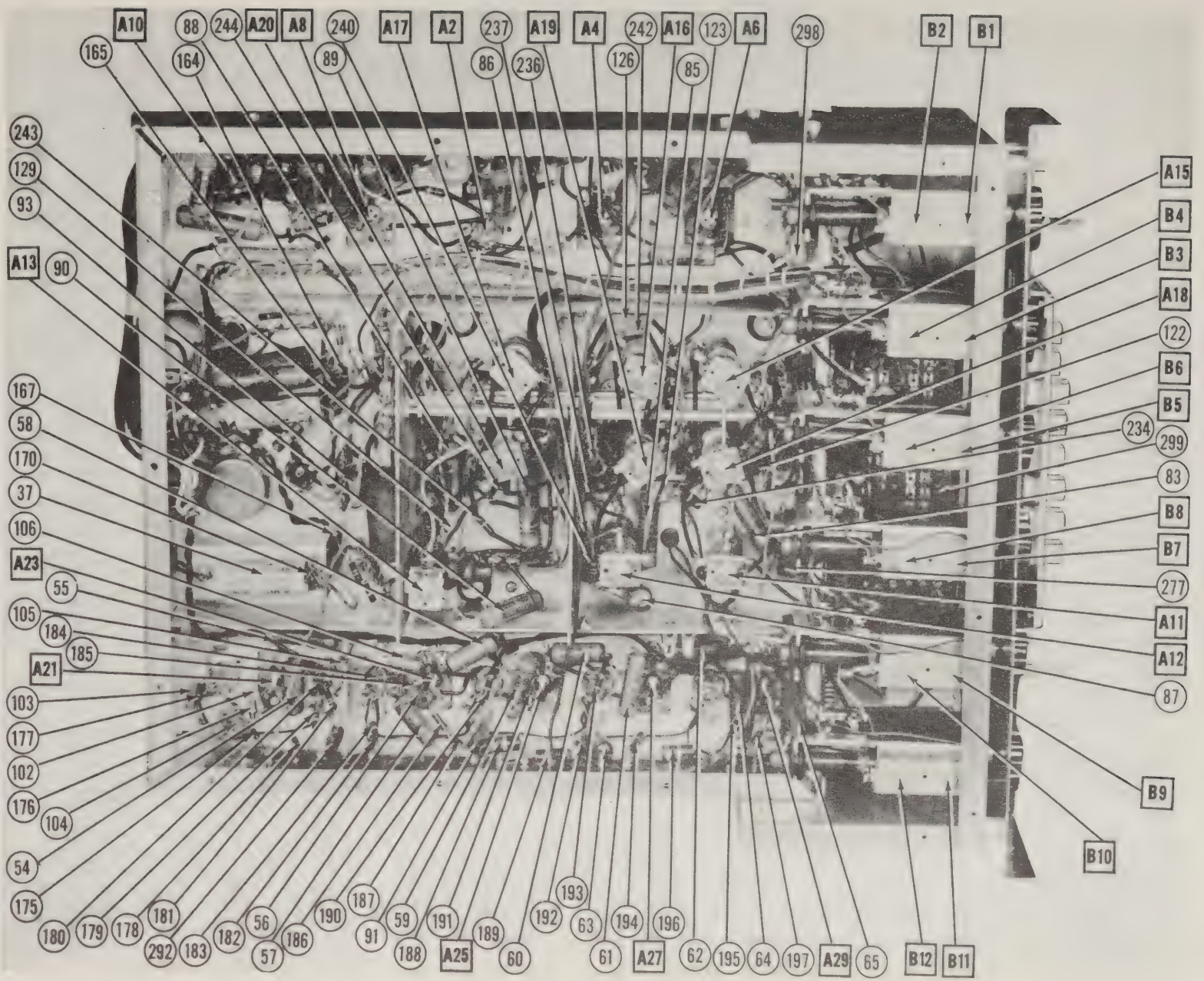
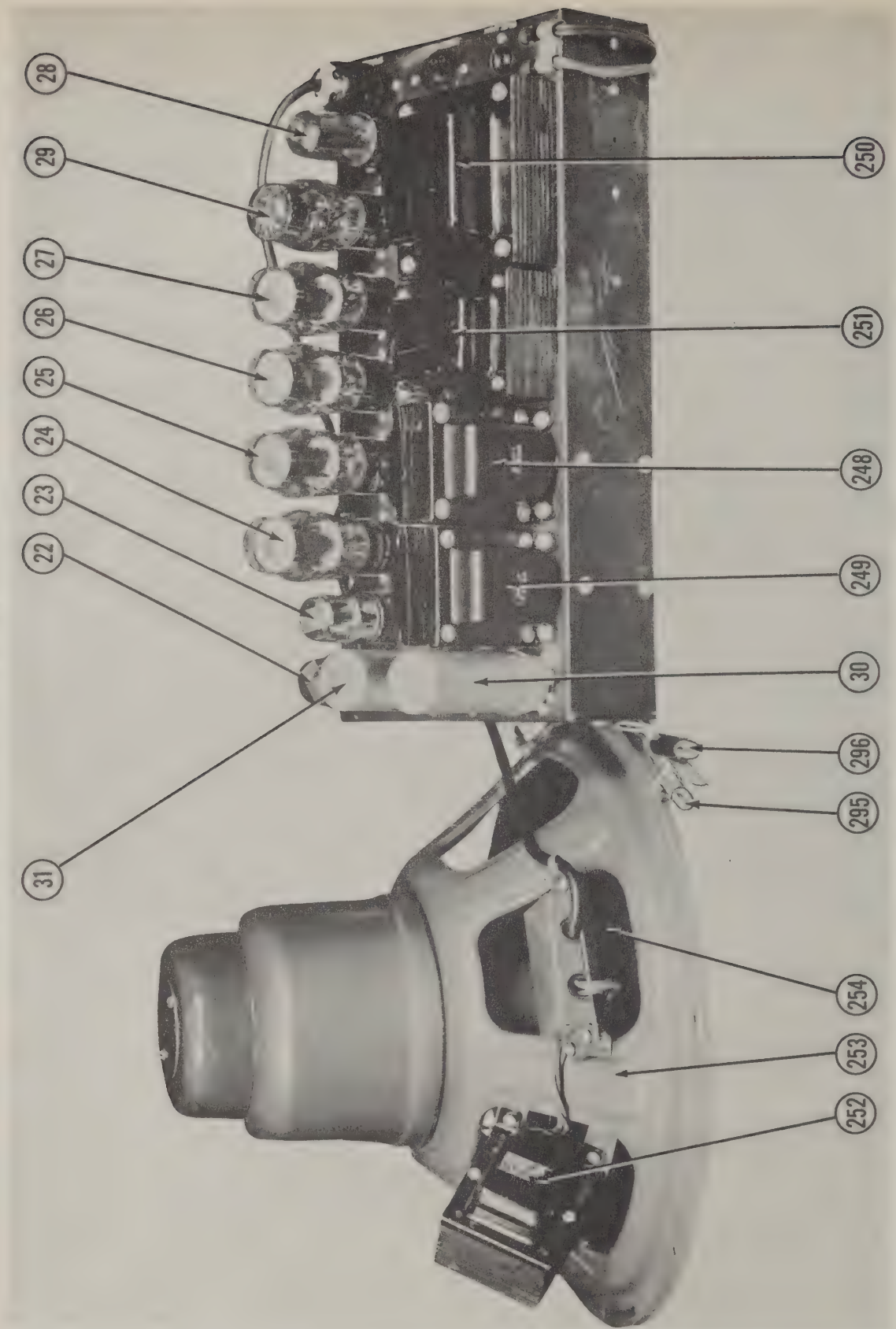
CHASSIS—BOTTOM VIEW



CHASSIS—BOTTOM VIEW



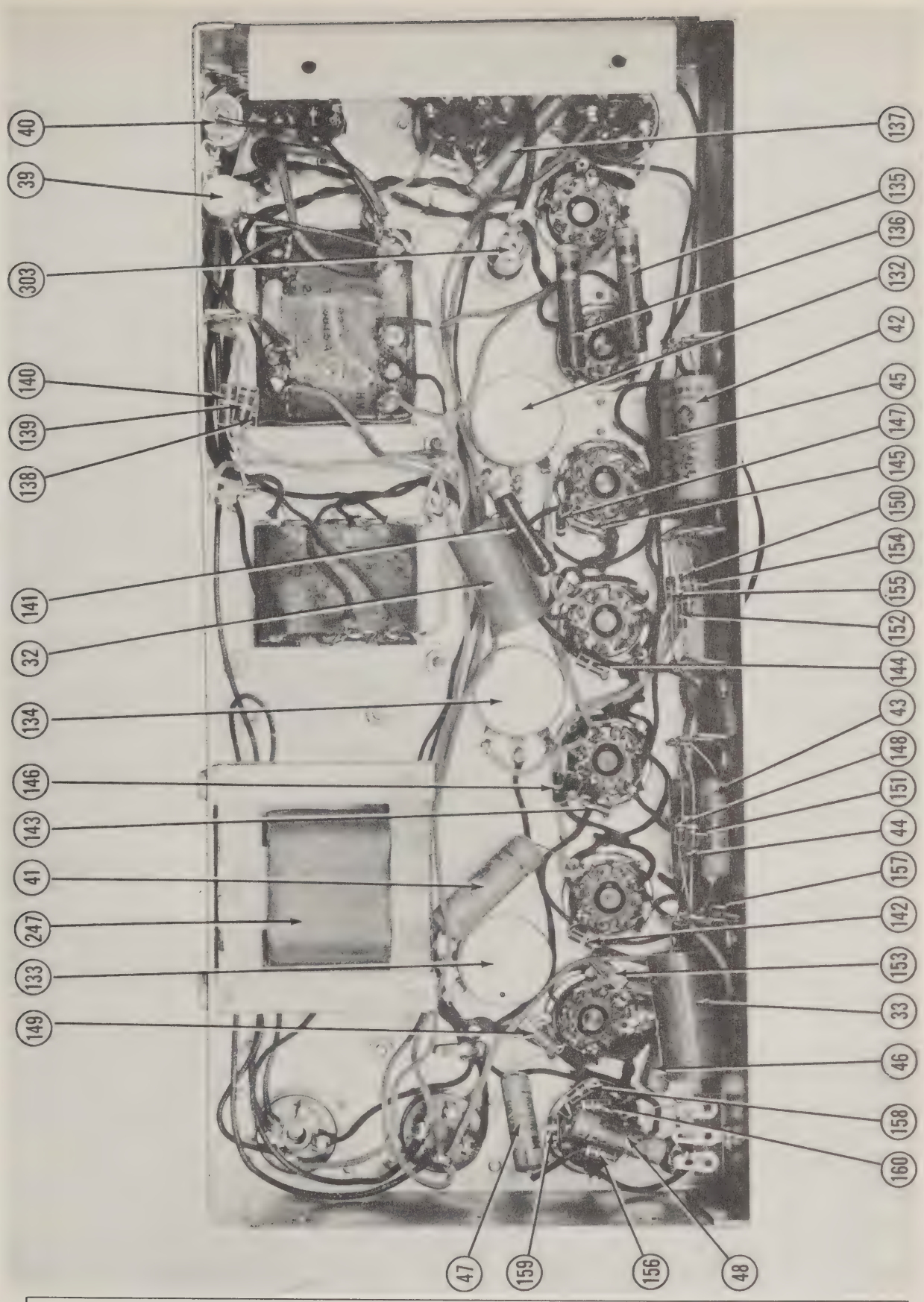
CHASSIS—TOP VIEW



ADJUSTMENTS OF HUM-BALANCING CONTROLS

In the event that amplifier tubes are changed, it may be necessary to adjust the hum-balancing control located as shown in the top view of the tuner chassis. If hum is present when new tubes have been installed, adjust the humbalancing control for minimum hum in the speaker.

CHASSIS—BOTTOM VIEW



FEED-BACK-BALANCING CONTROL

These controls are very critical in adjustment and should not be adjusted in the field. The controls are accurately set at the factory using highly complex measuring equipment. This factory adjustment should last through the normal life of the instrument.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MEISSNER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AM RF Amp.	9003	9003	7PM	
2	AM Mixer	6BE6	6BE6	7CH	
3	AM Osc.	6C4	6C4	6BG	
4	AM 1st IF Amp.	9003	9003	7PM	
5	AM 2nd IF Amp.	9003	9003	7PM	
6	AM Detector	9002	9002	7TM	
7	AM AVC Amp.	6AG5	6AG5	7BD	
8	AM AVC-Tuning Eye Rectifier	6AL5	6AL5	6BT	
9	AM Tuning Eye Amp.	9003	9003	7PM	
10	FM RF Amp.	6AG5	6AG5	7BD	
11	FM Mixer	6AG5	6A65	7BD	
12	FM Osc.	6C4	6C4	6BG	
13	FM 1st IF	6AG5	6AG5	7BD	
14	FM 2nd IF	6AG5	6AG5	7BD	
15	FM 3rd IF	6AG5	6AG5	7BD	
16	FM 1st Limiter	9001	9001	7PM	
17	FM 2nd Limiter	9001	9001	7PM	
18	Discriminator	6AL5	6AL5	6BT	
19	Tuning Eye	6U5/6G5	6U5/6G5	6R	
20	Phono Amp.	9002	9002	7TM	
21	1st AF Amp.	9002	9002	7TM	
22	Phase Inv.	6J5GT	6J5GT	6R	
23	Driver	6SN7GT	6SN7GT	8BD	
24	Power Output	6L6GA	6L6GA	7AC	
25	Power Output	6L6GA	6L6GA	7AC	
26	Power Output	6L6GA	6L6GA	7AC	
27	Power Output	6L6GA	6L6GA	7AC	
28	Rectifier	5Y3G	5Y3G	5T	
29	Rectifier	5Y4G	5Y4G	5R	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MEISSNER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
30A	20	450	27171	FP234	DY-2x20-450	EL-220	GL450-20-20	KRC5220	Filter
B	20	450							"
31A	20	450	27171	FP234	DY-2x20-450	EL-220	GL450-20-20	KRC5220	"
B	20	450							"
32	50	50	28106	TC39	M-50-50	TA-550	PRS50-50	BR505	Cath. Bypass
33	10	450	28109	TC72	M-10-450	UT-12	PRS450-10	BR1045	Phase Inverter Decoup.
34	10	450	28109	TC72	M-10-450	UT-12	PRS450-10	BR1045	1st AF Plate Decoup.
35	25	25	28105	TC36	M-25-25	TA-25	PRS25-25	BR252A	1st AF Cath. Bypass
36	10	450	28109	TC72	M-10-450	UT-12	PRS450-10	BR1045	Phono Amp. Plate Decoup
37	25	25	28105	TC36	M-25-25	TA-25	PRS25-25	BR252A	Phono Amp. Cath. Bypass
38	10	450	28109	TC72	M-10-450	UT-12	PRS450-10	BR1045	AM Det. Plate Bypass
39	.05	600	28172	OT106	TM-6-05	TC-15	684-05	TVC6S5	Line Bypass
40	.05	600	28172	OT106	TM-6-05	TC-15	684-05	TVC6S5	" "
41	.1	400	28113	TP428	S-4-1	TC-1	484-.1	DT4P1	Filament Bypass
42	.1	600	28112	TP418	S-6-1	TC-1	684-.1	DT6P1	Tone Compensation
43	.01	600	28101	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
44	.01	600	28101	TP410	S-6-01	TC-11	684-01	DT6S1	" "
45	.1	600	28112	TP418	S-6-1	TC-1	684-.1	DT6P1	Tone Compensation
46	.01	600	28101	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
47	.01	600	28101	TP410	S-6-01	TC-11	684-01	DT6S1	" "
48	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	" "
49	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	" "
50	.1	600	28112	TP418	S-6-1	TC-1	684-.1	DT6P1	" "
51	.02	200	28130	TP423	S-4-02	TC-12	484-02	DT4S2	Tone Compensation
52	.01	200	28129	TP421	S-4-01	TC-11	484-01	DT4S1	" "
53	.005	600	28102	TP408	S-6-005	TC-25	684-005	DT6D5	" "
54	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	2nd Lim. Plate Decoup.
55	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	2nd Lim. Screen Bypass
56	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	1st Lim. Screen Bypass
57	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	AVC Filter
58	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	FM 3rd IF Screen Bypass

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MEISSNER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
59	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	FM 3rd IF Cath. Bypass
60	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	FM 2nd IF Screen Bypass
61	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	FM 2nd IF Cath. Bypass
62	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	FM 1st IF Screen Bypass
63	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	RF Bypass Pwr. Supp.
64	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	AVC Filter
65	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	Mixer Plate Decoupling
66	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	T. E. Grid Filter
67	.02	400	28117	TP423	S-4-02	TC-12	484-02	DT4S2	T. E. Screen Bypass
68	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	T. E. Cath. Bypass
69	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
70	.02	400	28117	TP423	S-4-02	TC-12	484-02	DT4S2	AM AVC Plate Decoup.
71	.1	400	28113	TP428	S-4-1	TC-1	484-.1	DT4P1	AM AVC Screen Bypass
72	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	AM AVC Cath. Bypass
73	.02	400	28117	TP423	S-4-02	TC-12	484-02	DT4S2	Det. Plate Bypass
74	.02	400	28117	TP423	S-4-02	TC-12	484-02	DT4S2	AM 2nd IF Plate Decoup.
75	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	AM 2nd IF Cath. Bypass
76	.01	400	28109	TP421	S-4-01	TC-11	484-01	DT4S1	AM 2nd IF Grid Filter
77	.1	400	28113	TP428	S-4-1	TC-1	484-.1	DT4P1	Screen Bypass
78	.05	400	28105	TP426	S-4-05	TC-15	484-05	DT4S5	AM 1st IF Cath. Bypass
79	.1	400	28113	TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supp.
80	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	AM 1st IF Grid Filter
81	.02	400	28117	TP423	S-4-02	TC-12	484-02	DT4S2	AM Mixer Plate Decoup.
82	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supp.
83	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	AM Osc. Plate Bypass
84	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
85	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	AM Mixer Screen Bypass
86	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	AM Mixer Cath. Bypass
87	.1	400	28113	TP428	S-4-1	TC-1	484-.1	DT4P1	AM RF Plate Decoup.
88	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	AM RF Screen Bypass
89	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	AM RF Cath. Bypass
90	.025	400	28132	TP451	S-6-025	TC-12	484-025	DT4S25	AVC Filter
91	.01	400	28119	TP421	S-4-01	TC-11	484-01	DT4S1	RF Bypass Pwr. Supp.
92	.05	400	28103	TP426	S-4-05	TC-15	484-05	DT4S5	T. E. Amp. Plate Decoup.
93	100	500	CM20A101K	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Tone Compensation
94	100	500	CM20A101K	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Phono Coupling
95	330	500	CM20A331K	MC241	MO.5-333	1FM-335	1468-00035	5W5T3	Tone Compensation
96	330	500	CM20A331K	MC241	MO.5-333	1FM-335	1468-00035	5W5T3	" "
97	2700	500	CM30A272K	MC460	MO.5-227		1467-0025	1W5D25	" "
98	120	500	CM20A121K	MC235	MO.5-312	1FM-31	1468-0001	5W5T1	Tone Compensation
99	680	500	CM25A681K						" "
100	330	500	CM20A331K	MC241	MO.5-333	1FM-335	1468-00035	5W5T3	" "
101	2700	500	CM30A272K	MC460	MO.5-227		1467-0025	1W5D25	" "
102	50	300	27166	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Disc. Filter Cer.
103	50	300	27166	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	" " "
104	220	500	CM20A221M	MC237	MO.5-322	1FM-32	1468-0002	5W5T2	De-emphasis
105	22	500	CM20A220K	MC220	MO.5-422	MS-42		5W5Q2	Limiter Coupling
106	47	500	CM20B470K	MC225	MO.5-447	MS-45	1468-00005	5W5Q5	1st Lim. Grid Filter
107	30	300	28127		MO.5-43	MS-43		5W5Q3	FM Osc. Grid Cer.
108	5	300	28160						Fixed Trimmer Cer.
109	120	300	28124						FM Osc. Plate Bypass Cer.
110	10	300	28140						Osc. Coupling "
111	1000	500	28125						FM Mixer Screen Bypass "
112	120	300	28126						RF Coupling "
113	1000	500	28125						FM RF Plate Decoup. "
114	500	300	28120						FM RF Screen Bypass "
115	120	300	28126	MC235	MO.5-312	1FM-31	1468-0001	5W5T1	FM RF Grid Filter "
116	270	500	CM20A271K	MC240	MO.5-327	1FM-325	1468-00025	5W5T25	T.E. Amp. Plate Decoup.
117	15	500	CM20A150M			MS-415			IF Coupling
118	470	500	CM20A471M	MC245	MO.5-347	1FM-35	1468-0005	5W5T5	AVC Diode Filter
119	270	500	CM20A271K	MC240	MO.5-327	1FM-325	1468-00025	5W5T25	IF Filter
120	270	500	CM20A271K	MC240	MO.5-327	1FM-325	1468-00025	5W5T25	" "
121	15	500	CM20A150M			MS-415			IF Coupling
122	100	500	CM20A101M	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Capacitor
123	47	500	CM20A470M	MC225	MO.5-447	1FM-45	1468-00005	5W5Q5	Osc. Coupling
124	230	500	CM20A231J						Fixer Trimmer
125	1100	300	CM20A112M	MC455	MO.3-21	1FM-21	1468-001	1W5D1	Osc. Cath. Bypass
126	470	500	CM20A471M	MC245	MO.5-347	1FM-35	1468-0005	5W5T5	RF Coupling
128	10	500	CM20A100M	MC215	MO.5-41	MS-41	1468-00001	5W5Q1	Ant. Coupling
129	180	500	CM20A181K						" "

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MEISSNER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
130A	500KΩ	1	29232	TM-2Z1			Volume Control
B	Shaft			SS-1			Attach to 130A per instructions
C	Switch			M-26	"	"	"
131	100Ω	2	29260	M100P	W-100	43-100	Hum Balance Control
132	100Ω	2	29260	M100P	W-100	43-100	Bias Balance Control
133	100Ω	2	29260	M100P	W-100	43-100	Hum Balance Control
134	1000Ω	2	29259	M1MP	W-1000	43-1000	Feedback Balance Control

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MEISSNER PART No.	IRC PART No.	
135	82Ω	2	28123	BW-2-82	Gray-Red-Blk. Rectifier Ballast
136	82Ω	2	28123	BW-2-82	Gray-Red-Blk. Rectifier Ballast
137	68KΩ	2	RC40AE683M	BT-2-68K	Blue-Gray-Or. Bleeder
138	18KΩ	1	RC30AE183K	BTA-18K	Br.-Gray-Or. Bleeder
139	18KΩ	1	RC30AE183K	BTA-18K	Br.-Gray-Or. Bleeder
140	6800Ω	1	RC30AE682K	BTA-6800	Blue-Gray-Red Bleeder
141	240Ω	5	27195	ABA-250	Output Cathode - See Note 1
142	1000Ω	½	RC20AE102M	BTS-1000	Br.-Blk.-Red Parasitic Suppressor
143	1000Ω	½	RC20AE102M	BTS-1000	Br.-Blk.-Red " "
144	1000Ω	½	RC20AE102M	BTS-1000	Br.-Blk.-Red " "
145	1000Ω	½	RC20AE102M	BTS-1000	Br.-Blk.-Red " "
146	220KΩ	½	RC20AE224J	BTS-220K	Red-Red-Yl. Output Grid
147	220KΩ	½	RC20AE224J	BTS-220K	Red-Red-Yl. Output Grid
148	100KΩ	½	RC20AE104J	BTS-100K	Br.-Blk.-Yl. 1st Driver Plate Load
149	470KΩ	½	RC20AE474M	BTS-470K	Yl.-Vi.-Yl. 1st Driver Grid
150	2200Ω	½	RC20AE222K	BTS-2200	Red-Red-Red 1st Driver Cathode
151	100KΩ	½	RC20AE104J	BTS-100K	Br.-Blk.-Yl. 2nd Driver Plate Load
152	2200Ω	½	RC20AE222K	BTS-2200	Red-Red-Red 2nd Driver Cathode
153	470KΩ	½	RC20AE474M	BTS-470K	Yl.-Vi.-Yl. 2nd Driver Grid
154	75KΩ	½	RC20AE753J	BTS-68K	Vi.-Grn.-Or. Feedback
155	75KΩ	½	RC20AE753J	BTS-68K	Vi.-Grn.-Or. "
156	47KΩ	½	RC20AE473J	BTS-47K	Yl.-Vi.-Or. Phase Inverter Plate Load
157	22KΩ	½	RC20AE223M	BTS-22K	Red-Red-Or. Phase Inverter Plate Decoupling
158	3300Ω	½	RC20AE332K	BTS-3300	Or.-Or.-Red Phase Inverter Cathode
159	1 Meg.	½	RC20AE105M	BTS-1 Meg.	Br.-Blk.-Grn. Phase Inverter Grid
160	47KΩ	½	RC20AE473J	BTS-47K	Yl.-Vi.-Or. Phase Inverter Cathode
161	120KΩ	½	RC20AE124K	BTS-120K	Br.-Red-Yl. Tone Compensation
162	39KΩ	½	RC20AE393K	BTS-39K	Or.-White-Or. " "
163	18KΩ	½	RC20AB183K	BTS-18K	Br.-Gray-Or. Audio Amp. Plate Load
164	15KΩ	½	RC20AE153M	BTS-15K	Br.-Grn.-Or. Audio Amp. Plate Decoupling
165	560Ω	½	RC20AE561K	BTS-560	Grn.-Blue-Br. Audio Amp. Cathode
166	33KΩ	½	RC20AE333K	BTS-33K	Or.-Or.-Or. Tone Compensation
167	470KΩ	½	RC20AE474K	BTS-470K	Yl.-Vi.-Yl. " "
168	27KΩ	½	28137	BTS-27K	Red-Vi.-Or. Phono Amp. Plate Load
169	22KΩ	½	RC20AE223M	BTS-22K	Red-Red-Or. Phono Amp. Plate Decoupling
170	1000Ω	½	RC20AE102M	BTS-1000	Br.-Blk.-Red Phono Amp. Cathode
171	220KΩ	½	RC20AE224K	BTS-220K	Red-Red-Yl. Phono Amp. Grid
172	4.7 Meg.	½	RC20AE475K	BTS-4.7 Meg.	Yl.-Vi.-Grn. Tone Compensation
173	4700Ω	½	RC20AE472M	BTS-4700	Yl.-Vi.-Red Bleeder
174	100KΩ	½	RC30AE104M	BTS-100K	Br.-Blk.-Yl. Bleeder
175	100KΩ	½	RC20AE104M	BTS-100K	Br.-Blk.-Yl. De-emphasis Network
176	100KΩ	½	RC20AE104J	BTS-100K	Br.-Blk.-Yl. Discriminator Diode Load
177	100KΩ	½	RC20AE104J	BTS-100K	Br.-Blk.-Yl. Discriminator Diode Load
178	1500Ω	½	RC20AE152M	BTS-1500	Br.-Grn.-Red 2nd Limiter Plate Decoupling
179	22KΩ	½	RC20AE223M	BTS-22K	Red-Red-Or. 2nd Limiter Screen Dropping
180	22KΩ	½	RC20AE223M	BTS-22K	Red-Red-Or. 2nd Limiter Screen Bleeder
181	150KΩ	½	RC20AE154K	BTS-150K	Br.-Grn.-Yl. 2nd Limiter Grid
182	10KΩ	½	RC20AB103M	BTS-10K	Br.-Blk.-Or. 1st Limiter Plate Load
183	22KΩ	½	RC20AE223M	BTS-22K	Red-Red-Or. 1st Limiter Screen Dropping
184	22KΩ	½	RC20AE223M	BTS-22K	Red-Red-Or. 1st Limiter Screen Bleeder
185	47KΩ	½	RC20AE473M	BTS-47K	Yl.-Vi.-Or. 1st Limiter Grid Filter
186	2.2 Meg.	½	RC20AE225M	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
187	1500Ω	½	RC20AE152M	BTS-1500	Br.-Grn.-Red FM 3rd IF Plate Decoupling
188	2700Ω	2	RC40AE272K	BT-2-2700	Red-Vi.-Red Voltage Dropping
189	2200Ω	2	RC40AE222K	BT-2-2200	Red-Red-Red Voltage Dropping
190	120Ω	½	RC20AE121K	BW-½-120	Br.-Red-Br. FM 3rd IF Cathode
191	3300Ω	½	RC20AE332M	BTS-3300	Or.-Or.-Red FM 3rd IF Grid
192	10KΩ	1	RC20AE103M	BTA-10K	Br.-Blk.-Or. FM 2nd IF Plate Decoupling

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MEISSNER PART No.	IRC PART No.	
193	120Ω	½	RC20AE121K	BW-½-120	Br.-Red-Br. FM 2nd IF Cathode
194	10KΩ	1	RC20AE103M	BTA-10K	Br.-Blk.-Or. FM 1st IF Plate Decoupling
195	100KΩ	½	RC20AE104M	BTS-100K	Br.-Blk.-Yl. AVC Network
196	470Ω	2	RC40AE471K	BT-2-470	Yl.-Vi.-Br. Decoupling
197	47KΩ	½	RC20AE473K	BTS-47K	Yl.-Vi.-Or. FM Mixer Plate Decoupling
198	33KΩ	½	RC20AE333K	BTS-33K	Or.-Or.-Or. FM Oscillator Grid
199	12KΩ	2	RC40AE123K	BT-2-12K	Br.-Red-Or. FM Oscillator Plate Load
200	47KΩ	½	RC20AE473K	BTS-47K	Yl.-Vi.-Or. FM Mixer Screen Dropping
201	22KΩ	½	RC20AE223M	BTS-22K	Red-Red-Or. FM Mixer Screen Bleeder
202	4700Ω	½	RC20AE472M	BTS-4700	Yl.-Vi.-Red FM Mixer Cathode
203	12KΩ	2	RC40AE473K	BT-2-12K	Br.-Red-Or. FM RF Plate Load
204	47KΩ	½	RC20AE473K	BTS-47K	Yl.-Vi.-Or. FM RF Screen Dropping
205	100KΩ	½	RC20AE104M	BTS-100K	Br.-Blk.-Yl. AVC Network
206	1 Meg.	½	RC20AE105M	BTS-1 Meg.	Br.-Blk.-Grn. Tuning Eye Grid Filter
207	47KΩ	½	RC20AE473K	BTS-47K	Yl.-Vi.-Or. Tuning Eye Diode Load
208	1000Ω	½	RC20AE102M	BTS-1000	Br.-Blk.-Red Tuning Eye Amp. Plate Decoupling
209	470KΩ	½	RC20AE474M	BTS-470K	Yl.-Vi.-Yl. Tuning Eye Amp. Screen Dropping
210	470Ω	½	RC20AE471M	BTS-470	Yl.-Vi.-Br. Tuning Eye Amp. Cathode
211	100KΩ	½	RC20AE104M	BTS-100K	Br.-Blk.-Yl. Tuning Eye Amp. Grid
212	3.3 Meg.	½	RC20AE335M	BTS-3.3 Meg.	Or.-Or.-Grn. Tuning Eye Amp. Grid
213	18KΩ	2	RC20AE183K	BT-2-18K	Br.-Gray-Or. D.A.V.C. Bleeder Network
214	15KΩ	2	RC20AE153K	BT-2-15K	Br.-Grn.-Or. " "
215	1000Ω	½	RC20AE102M	BTS-1000	Br.-Blk.-Red D.A.V.C. Bleeder Network
216	680KΩ	½	RC20AE684K	BTS-680K	Blue-Gray-Red IF Filter
217	220KΩ	½	RC20AE224M	BTS-220K	Red-Red-Yl. AVC Diode Load
218	470KΩ	½	RC20AE474M	BTS-470K	Yl.-Vi.-Yl. AVC Network
219	1000Ω	½	RC20AE102M	BTS-1000	Br.-Blk.-Red AVC Amp. Plate Decoupling
220	47KΩ	½	RC20AE473J	BTS-47K	Yl.-Vi.-Or. AVC Amp. Screen Dropping
221	220Ω	½	RC20AE221M	BW-½-220	Red-Red-Br. AVC Amp. Cathode
222	470KΩ	½	RC20AE474M	BTS-470K	Yl.-Vi.-Yl. AVC Amp. Grid
223	150KΩ	½	RC20AE154M	BTS-150K	Br.-Grn.-Yl. AM Detector Cathode
224	15KΩ	½	RC40AE153M	BTS-15K	Br.-Grn.-Or. IF Filter
225	15KΩ	½	RC40AE153M	BTS-15K	Br.-Grn.-Or. AM Detector Plate Load
226	1000Ω	½	RC20AE102M	BTS-1000	Br.-Blk.-Red AM 2nd IF Plate Decoupling
227	470Ω	½	RC20AE471M	BTS-470	Yl.-Vi.-Br. AM 2nd IF Cathode
228	100KΩ	½	RC20AE104M	BTS-100K	Br.-Blk.-Yl. AVC Network
229	47KΩ	1	RC30AE473K	BTA-47K	Yl.-Vi.-Or. AM IF Screen Dropping
230	470Ω	½	RC20AE471M	BTS-470	Yl.-Vi.-Br. AM 1st IF Cathode
231	100KΩ	½	RC20AE104M	BTS-100K	Br.-Blk.-Yl. AVC Network
232	470KΩ	½	RC20AE474M	BTS-470K	Yl.-Vi.-Yl. AVC Network
233	1000Ω	½	RC20AE102M	BTS-1000	Br.-Blk.-Red AM Mixer Plate Decoupling
234	15KΩ	1	RC30AE153M	BTA-15K	Br.-Grn.-Or. AM Oscillator Plate Load
235	47KΩ	½	RC20AE473M	BTS-47K	Yl.-Vi.-Or. AM Oscillator Grid
236	22KΩ	2	RC40AE223K	BTS-22K	Red-Red-Or. AM Mixer Screen Dropping
237	22KΩ	½	RC20AE223K	BTS-22K	Red-Red-Or. AM Mixer Injection Grid
238	180Ω	½	RC20AE181K	BW-½-180	Br.-Gray-Br. AM Mixer Cathode
239	2.2 Meg.	½	RC20AE225M	BTS-2.2 Meg.	Red-Red-Grn. AM Mixer Signal Grid
240	3300Ω	½	RC20AE332K	BTS-3300	Or.-Or.-Red RF Coil Shunt BC
241	1000Ω	½	RC20AE102M	BTS-1000	Br.-Blk.-Red AM RF Plate Decoupling
242	1500Ω	½	RC20AE152M	BTS-1500	Br.-Grn.-Red AM RF Plate Load PB
243	100KΩ	½	RC20AE104M	BTS-100K	Br.-Blk.-Yl. AM RF Screen Dropping
244	470Ω	½	RC20AE471M	BTS-470	Yl.-Vi.-Br. AM RF Cathode
245	100KΩ	½	RC20AE104M	BTS-100K	Br.-Blk.-Yl. AVC Network
246	1 Meg.	½	RC20AE105M	BTS-1 Meg.	Br.-Blk.-Grn. Tuning Eye Plate Load
304	1 Meg.	½	RC20AE105M	BTS-1 Meg.	Br.-Blk.-Grn. Tone Compensation
305	27K	½	RC20AE273K	BTS-27K	Red-Vi.-Or. AM Det. Series Audio

Note 1 - On IRC replacement set slider 240Ω from one end.

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000~)	MEISSNER PART NO.	STANCOR PART NO.	THORDARSON PART NO.	MERIT PART No.	
247	.144A	75Ω	4.5Henries	29224	C-2304*	T49790		*Drill new mounting holes.
248	.074A	170Ω	9 Henries	29227	C-1421*	T20C55*	C-2990*	
246	.074A	170Ω	9 Henries	29227	C-1421*	T20C55*	C-2990*	

DATE 10/47 SET #27 FOLDER #4717-19

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MEISSNER PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
250	117V AC @ 1.16A	760V CT @ .21CA	4.6V AC @ 1.8A	4.0V AC @ 2.0A	29225		T49S15A	
251	117V AC @ .64A	6.6V AC @ .3A	6.4V AC @ 4.3A	6.4V AC @ 4.5A	29226		T49S14A	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MEISSNER PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
252	3500Ω CT	22Ω	110Ω CT	.9Ω	29290		T22S78*		*Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	MEISSNER PART No.	JENSEN PART No.		
253	PM	22Ω	29220-2	ST-122# HNP-51		#Add transformer (16Ω to 500Ω) to match replacement to receiver output.
	CONE DIA.	VC DIA.				
254	14"	2-1/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MEISSNER PART No.	MEISSNER PART No.
255	Loop Ant.		.1Ω	04751	
256	BC Ant.Coil	38Ω & .5Ω	2.7Ω	04607	
257	PB Ant.Coil		6Ω	04672	
258	" " "		6Ω	04672	
259	" " "		6Ω	04672	
260	" " "		6Ω	04672	
261	" " "		6Ω	04672	
262	" " "		6Ω	04672	
263	SW Ant.Coil 1	.5Ω	.1Ω	04610	
264	" " " 2	.2Ω	0Ω	04613	
265	BC RF Coil	67Ω	5.6Ω	04608	
266	SW RF Coil 1	.7Ω	.1Ω	04611	
267	" " " 2	1.1Ω	0Ω	04614	
268	BC Osc.Coil		5.1Ω	04609	
269	PB " "		3Ω	04673	
270	" " "		3Ω	04673	
271	" " "		3Ω	04673	
272	" " "		3Ω	04673	
273	" " "		3Ω	04673	
274	" " "		3Ω	04673	
275	SW " " 1		.1Ω	04612	
276	" " " 2		0Ω	04615	
277	Osc.Cath.		29Ω	04650	
278	AM Input IF	6.7Ω	7Ω & .1Ω	04216	
279	AM Inter.IF	6.7Ω	7Ω & .1Ω	04216	
280	AM Output IF	6.5Ω	6.7Ω	04238	
281	AVC IF	6.5Ω	6.7Ω	04238	
282	Tuning Eye IF	3Ω	3Ω	04421	
283	FM Ant.			04674	
284	FM Ant.Coil	0Ω	0Ω	04690	
285	FM RF Coil		0Ω	04690	
286	FM Osc. "		0Ω	04690	
287	FM Input IF	.8Ω	.8Ω	04193	
288	FM Inter. IF	.8Ω	.8Ω	04193	
289	FM Output IF	.8Ω	.8Ω	04193	
290	Lim. Trans.	.8Ω	.8Ω	04193	
291	Disc. Trans.	.8Ω	1Ω	04194	
292	Fil. RF Chk.		.8Ω	04588	

PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MEISSNER PART No.		
293	Bayonet	6-8	0.25	Blue	29262		Type 44
294	"	6-8	"	"	29262		" "
295	"	"	"	"	29262		" "
296	"	"	"	"	29262		" "

MISCELLANEOUS

ITEM No.	PART NAME	MEISSNER PART No.	NOTES
297	Bandswitch	04179	
298	Switch	28299	Sensitivity
299	Pushbutton Assy.	28294	Station Selector
300	Pushbutton Assy.	28295	Tone-Phono Selector
301	Tuning Cap.	27168	
302	FM Tuner	04638	Shaft & Vanes
303	Fuse	29276	
A13	Trimmer	17057	BC Ant. Adj.
A14	Trimmer	17066	BC Osc. Padder
A31	Trimmer	17060	FM Osc. Adj.
A32	Trimmer	17062	FM RF Adj.
A33	Trimmer	17062	FM Ant. Adj.
	Dial Scale	04507	

PHONO CARTRIDGE

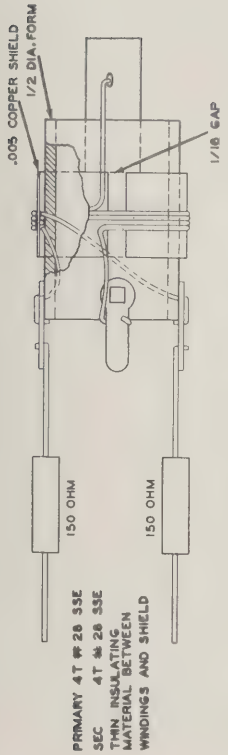
ITEM No.	REPLACEMENT DATA		REMARKS
	MEISSNER PART No.	ASTATIC PART No.	
306		MLP-2	Early productions
		QT-M	Later productions

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning capacitor fully closed and set pointer at the last reference mark at the left end of the broadcast band dial. Keep output of signal generator no higher than is necessary to obtain output indication. When aligning FM rf section use dummy antenna and coupling transformer constructed as shown in sketch. Use insulated alignment screwdriver for adjusting.

When using scope use 120~ sawtooth sweep from the internal sawtooth generator for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
1	.1 MFD.	High side to Pin #1 (grid) of 2nd IF tube (5). Low side to Pin #3 of same tube.	455KC (Freq.Mod. 20KC sweep)	BC	High freq. end of dial.	Pin #7 (cathode) of Detector (6) & chassis.	A1,A2,	Adjust for maximum amplitude, symmetry and coincidence of pattern on scope.
2	.1 MFD.	High side to Pin #1 (grid) of 1st IF Tube (4). Low side to Pin #3 of same tube.	"	"	"	"	A3,A4.	Adjust for maximum amplitude, symmetry and coincidence of pattern on scope. Turn selectivity switch to broad. Pattern should still be symmetrical about 455KC. Return selectivity switch to normal.
3	.1 MFD.	High side to Pin #7 (grid) of mixer tube (2). Low side to grnd. lug near socket of same tube.	"	"	"	"	A5,A6	"
4	.1 MFD.	High side to Pin #1 (grid) of AVC Amp. (7).Low side to ground lug near socket of same tube.	"	"	"	Low side of secondary of AVC IF (281) & chassis.	A7,A8	"
5	.1 MFD.	"	"	"	"	Low side of secondary of Tuning Eye IF (282)& chassis.	A9,A10	"
						OUTPUT METER		
6	200MMF.	High side to terminal #6 on ant. terminal strip. Low side to chassis.	1500KC	BC	1500KC	Across voice coil	A11	Adjust for maximum output
7	200MMF.	"	"	"	"	"	A12,A13	" " " "
8	200MMF.	"	600KC	"	Tune for maximum output.	"	A14	Rock variable and adjust for maximum output. Repeat last three steps until no further improvement can be made.
9	400 ohms	"	12.0MC	SW 1	12.0 MC	"	A15	Adjust for maximum output
10	400 ohms	"	"	"	"	"	A16,A17	Rock variable and adjust for maximum output.
11	400 ohms	"	18.0MC	SW 2	18.0MC	"	A18	Adjust for maximum output.
12	400 ohms	"	"	"	"	"	A19,A20	Rock variable and adjust for maximum output.
						SCOPE CONNECT		
13	.005MFD Mica	High side to Pin #1 (grid) of 1st limiter (16). Low side to grnd. lug near socket of same tube.	10.7MC (Freq.Mod. 200KC deviation)	FM	High freq. end of dial.	To Pin #6 (grid) of audio amp. (21) and chassis.	A21	Adjust so that peaks of curves are symmetrical about the vertical axis and cross over at the horizontal axis.
14	.005MFD Mica	"	"	"	"	"	A22	Adjust for maximum amplitude of peaks.
15	.005MFD Mica	High side to Pin #1 (grid) of 3rd IF (15). Low side to ground lug near same tube.	"	"	"	To low side of secondary of 1st limiter trans. & chassis.	A23,A24	Remove 9001 second limiter (17) from socket. Adjust for maximum amplitude, symmetry and coincidence of pattern on scope.
16	.005MFD Mica	High side to Pin #1 (grid) of 2nd IF (14). Low side to ground lug near same tube.	"	"	"	"	A25,A26	"
17	.005 MFD Mica	High side to Pin #1 (grid) of 1st IF (13). Low side to ground lug near same tube.	"	"	"	"	A27,A28	"
18	.005 MFD Mica	Remove FM mixer tube (11). Temporarily connect insulated lead to Pin #1 and replace tube in socket. Connect high side of signal generator to this lead. Low side to chassis.	"	"	"	"	A29,A30	Remove 9001 second limiter (17) from socket. Adjust for maximum amplitude, symmetry and coincidence of pattern on scope. Care should be taken not to disturb the mixer plate lead after IF alignment is completed as it will detune the 1st IF primary.
19	300Ω (See pre-alignment inst.)	To FM dipole terminals.	107.9MC	FM	300	To low side of secondary of 1st limiter trans. & chassis.	A31	Replace osc. tube. Adjust for maximum amplitude, symmetry and coincidence of pattern on scope.



DETAILS OF DUMMY ANTENNA AND 1:1 COUPLING TRANSF. TO GIVE BALANCED OUTPUT

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	9003 *	0V.	3.2VDC	6.3VAC	0V.	256VDC	83VDC	3.2VDC	-
2	6BE6 *	-.2VDC	2VDC	6.3VAC	0V.	265VDC	108VDC	0V.	-
3	6C4 *	157VDC	270VDC	6.3VAC	0V.	157VDC	0V.	0V.	-
4	9003 *	0V.	3.5VDC	0V.	6.3VAC	270VDC	95VDC	3.5VDC	-
5	9003 *	0V.	3.1VDC	0V.	6.3VAC	262VDC	97.5VDC	3.1VDC	-
6	9002 *	270VDC	11.5VDC	0V.	6.3VAC	265VDC	0V.	11.5VDC	-
7	6AG5 *	0V.	1.9VDC	6.3VAC	0V.	262VDC	148VDC	1.9VDC	-
8	6AL5 *	8.3VDC	-.3VDC	0V.	6.3VAC	0V.	0V.	0V.	-
9	9003 *	0V.	1.3VDC	6.3VAC	0V.	265VDC	31VDC	1.3VDC	-
10	6AG5 ‡	-.3VDC	0V.	0V.	6.3VAC	143VDC	132VDC	0V.	-
11	6AG5‡	0V.	2.2VDC	0V.	6.3VAC	250VDC	68VDC	2.4VDC	-
12	6C4‡	150VDC	0V.	6.3VAC	0V.	150VDC	-.4VDC	0V.	-
13	6AG5‡	-.25VDC	0V.	6.3VAC	0V.	123VDC	123VDC	0V.	-
14	6AG5‡	0V.	1.3VDC	6.3VAC	0V.	146VDC	146VDC	1.3VDC	-
15	6AG5‡	0V.	1.1VDC	6.3VAC	0V.	118VDC	118VDC	1.1VDC	-
16	9001‡	-.25VDC	0V.	6.3VAC	0V.	122VDC	57VDC	0V.	-
17	9001‡	-.4VDC	0V.	6.3VAC	0V.	145VDC	57VDC	0V.	-
18	6AL5‡	-1VDC	-1VDC	6.3VAC	0V.	0V.	0V.	-10VDC	-
19	6U5/6G5	0V.	22VDC	-.2VDC	265VDC	0V.	6.3VAC		-
20	9002	124VDC	3.4VDC	12VDC	12VDC	124VDC	0V.	3.4VDC	-
21	9002	123VDC	2.5VDC	12VDC	12VDC	123VDC	0V.	2.5VDC	-
22	6J5GT	0V.	96VDC	250VDC	340VDC	4VDC	98VDC	96VDC	105VDC
23	6SN7GT	0V.	165VDC	6.5VDC	0V.	155VDC	5.8VDC	96VDC §	96VDC §
24	6L6GA	0V.	96VDC	395VDC	395VDC	0V.	0V.	97VDC	40.5VDC
25	6L6GA	0V.	96VDC	395VDC	395VDC	0V.	0V.	97VDC	40.5VDC
26	6L6GA	0V.	96VDC	395VDC	395VDC	0V.	0V.	97VDC	40.5VDC
27	6L6GA	0V.	96VDC	395VDC	395VDC	0V.	0V.	97VDC	40.5VDC
28	5Y3G	0V.	292VDC	0V.	365VAC	0V.	370VAC	0V.	290VDC
29	5V4G	0V.	410VDC	0V.	350VAC	0V.	350VAC	0V.	410VDC

RESISTANCE READINGS

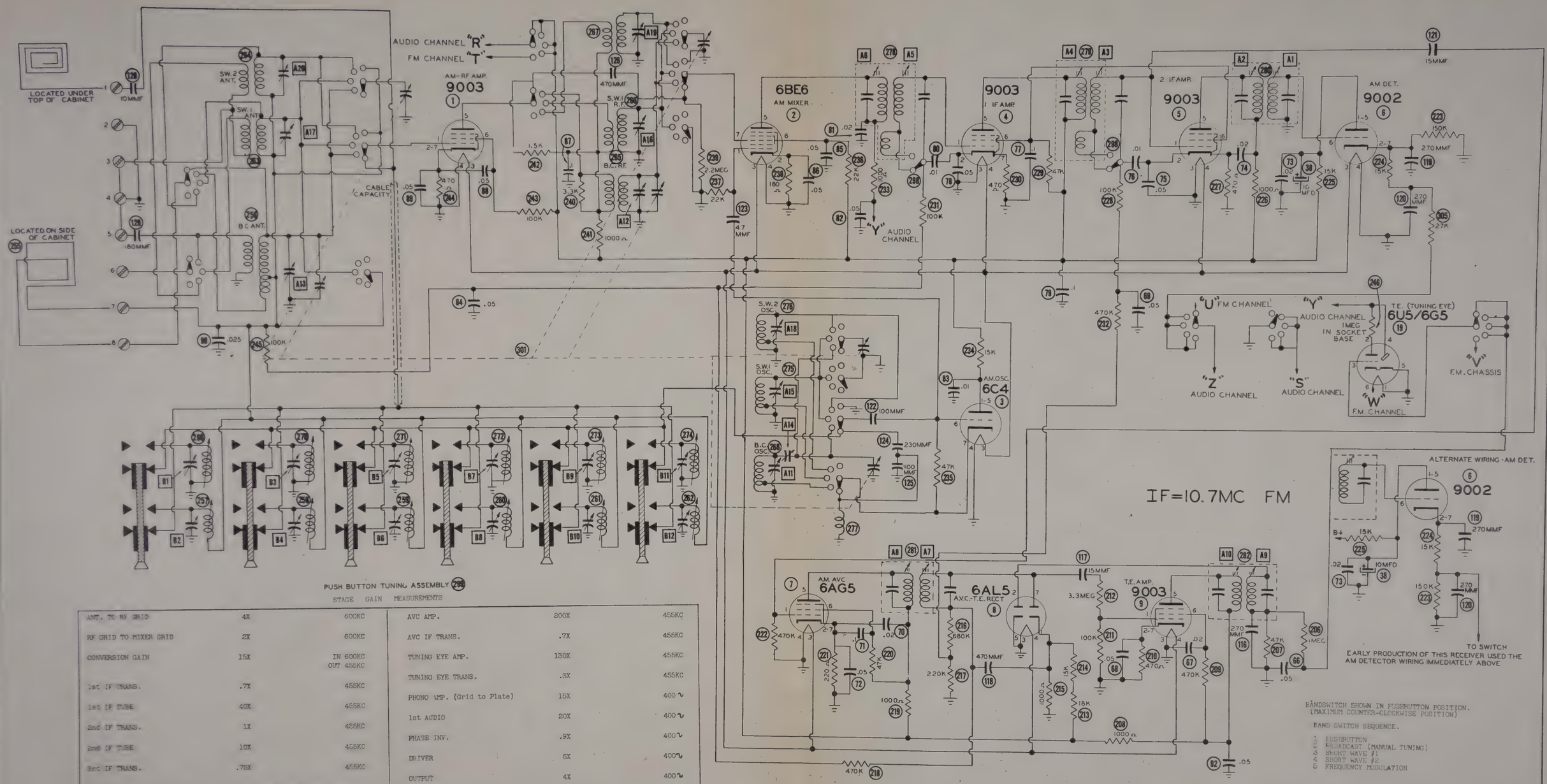
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	9003 *	1.4 Meg.	475Ω	.2Ω	0Ω	17KΩ	105KΩ	475Ω	-
2	6BE6 *	17KΩ	170Ω	.2Ω	0Ω	17KΩ	39KΩ	5Ω	-
3	6C4 *	29KΩ	17KΩ	.2Ω	0Ω	29KΩ	47KΩ	.7Ω	-
4	9003 *	1.4 Meg.	475Ω	0Ω	.2Ω	17KΩ	65KΩ	475Ω	-
5	9003 *	760KΩ	500KΩ	0Ω	.2Ω	17KΩ	65KΩ	500Ω	-
6	9002 *	29KΩ	167KΩ	0Ω	.2Ω	29KΩ	6Ω	167KΩ	-
7	6AG5 *	470KΩ	190Ω	.2Ω	0Ω	17KΩ	61KΩ	190Ω	-
8	6AL5 *	1000Ω	43KΩ	0Ω	.2Ω	0Ω	3 Meg.	860KΩ	-
9	9003 *	94KΩ	500Ω	.2Ω	0Ω	17KΩ	490KΩ	500Ω	-
10	6AG5 ‡	1.9 Meg.	0Ω	0Ω	.2Ω	23KΩ	57KΩ	0Ω	-
11	6AG5‡	0Ω	4KΩ	0Ω	.2Ω	57KΩ	17KΩ	4KΩ	-
12	6C4‡	25KΩ	INF.	.2Ω	0Ω	25KΩ	32KΩ	0Ω	-
13	6AG5‡	1.9 Meg.	0Ω	.2Ω	0Ω	20KΩ	2.5KΩ	0Ω	-
14	6AG5‡	.7Ω	115Ω	.2Ω	0Ω	20KΩ	20KΩ	115Ω	-
15	6AG5‡	.7Ω	115Ω	.2Ω	0Ω	13KΩ	13KΩ	115Ω	-
16	9001‡	42KΩ	0Ω	.2Ω	0Ω	22KΩ	15KΩ	0Ω	-
17	9001‡	146KΩ	0Ω	.2Ω	0Ω	13KΩ	13KΩ	0Ω	-
18	6AL5‡	100KΩ	145KΩ	.2Ω	0Ω	0Ω	INF.	145KΩ	-
19	6U5/6G5	0Ω	1 Meg.	950KΩ	18KΩ	0Ω	.1Ω		-
20	9002	62KΩ	1000Ω	4.2KΩ	4.2KΩ	62KΩ	205KΩ	1000Ω	-
21	9002	46KΩ	600Ω	4.2KΩ	4.2KΩ	46KΩ	500KΩ	600Ω	-
22	6J5GT	0Ω	6.5KΩ	112KΩ	65KΩ	1.2 Meg.	48KΩ	6.5KΩ	50KΩ
23	6SN7GT	430KΩ	140KΩ	2.6KΩ	470KΩ	138KΩ	2.5KΩ	6.5KΩ	6.5KΩ
24	6L6GA	0Ω	6.5KΩ	39KΩ	39KΩ	215KΩ	215KΩ	6.5KΩ	280Ω
25	6L6GA	0Ω	6.5KΩ	39KΩ	39KΩ	215KΩ	215KΩ	6.5KΩ	280Ω
26	6L6GA	0Ω	6.5KΩ	39KΩ	39KΩ	215KΩ	215KΩ	6.5KΩ	280Ω
27	6L6GA	0Ω	6.5KΩ	39KΩ	39KΩ	215KΩ	215KΩ	6.5KΩ	280Ω
28	5Y3G	INF.	17KΩ	INF.	72Ω	INF.	64Ω	INF.	17KΩ
29	5V4G	INF.	39KΩ	INF.	145Ω	INF.	138Ω	INF.	39KΩ

§ MEASURES 6.3 VAC BETWEEN FILAMENT PINS

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

* VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



STAGE GAIN MEASUREMENTS					
ANT. TO RF GRID	4X	600KC	AVC AMP.	200X	455KC
RF GRID TO MIXER GRID	2X	600KC	AVC IF TRANS.	.7X	455KC
CONVERSION GAIN	15X	IN 600KC OUT 455KC	TUNING EYE AMP.	130X	455KC
1st IF TRANS.	.7X	455KC	TUNING EYE TRANS.	.3X	455KC
1st IF TUBE	40X	455KC	PHONO AMP. (Grid to Plate)	16X	400 ∿
2nd IF TRANS.	1X	455KC	1st AUDIO	20X	400 ∿
2nd IF TUBE	10X	455KC	PHASE INV.	.9X	400 ∿
3rd IF TRANS.	.75X	455KC	DRIVER	5X	400 ∿
			OUTPUT	4X	400 ∿

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

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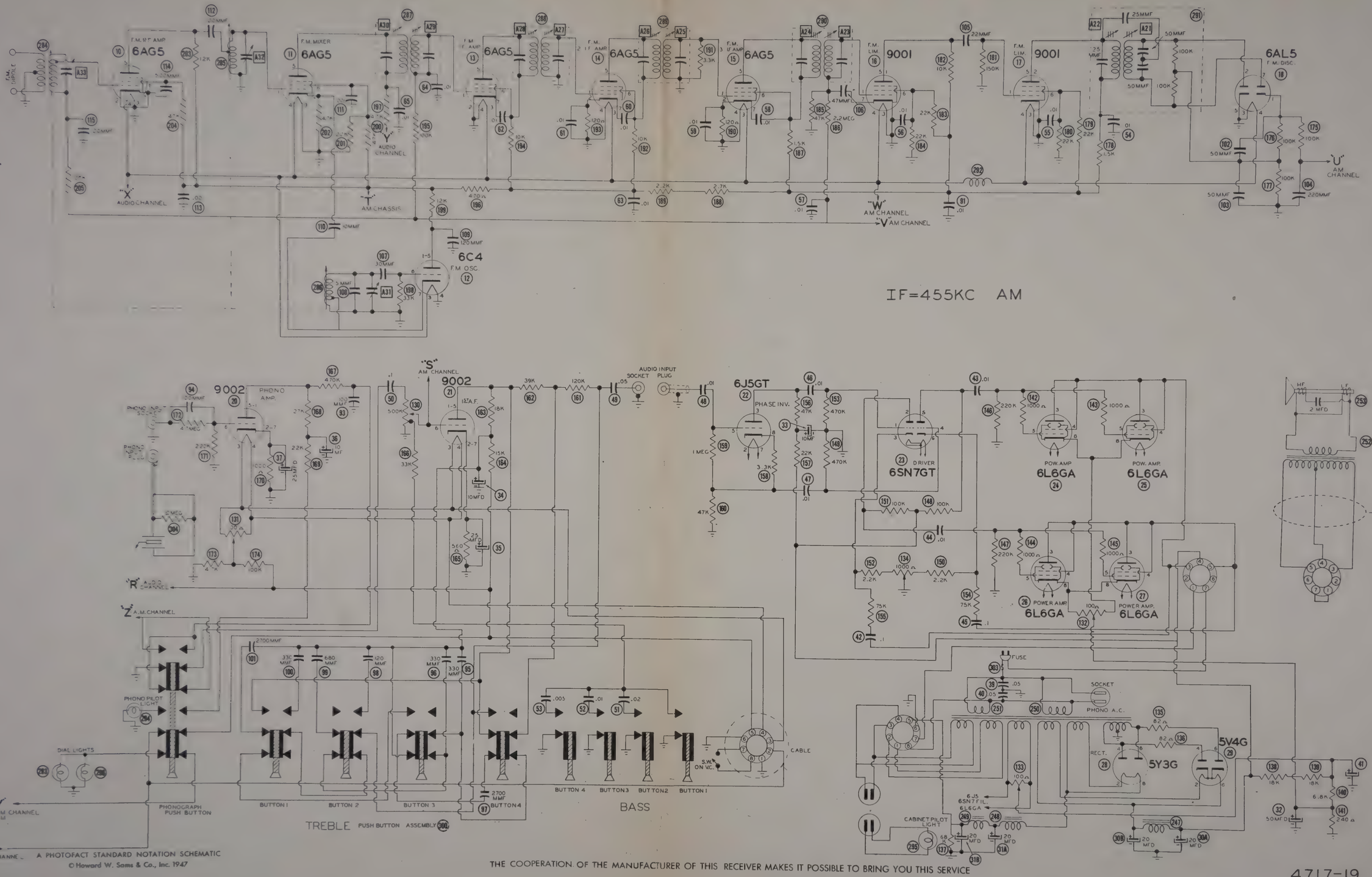
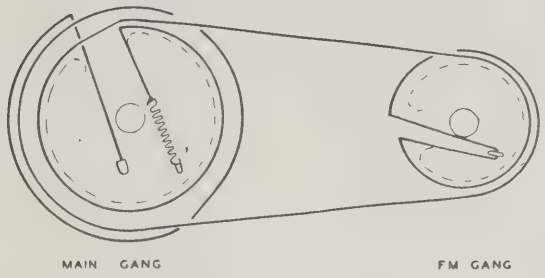
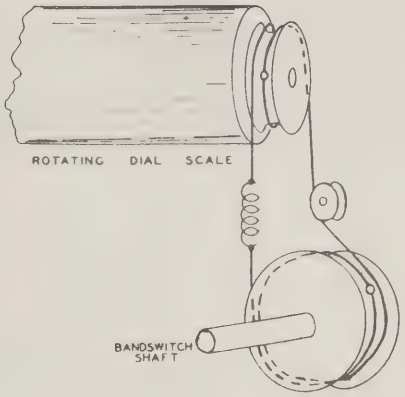
AM TUNER–PUSHBUTTON TUNING



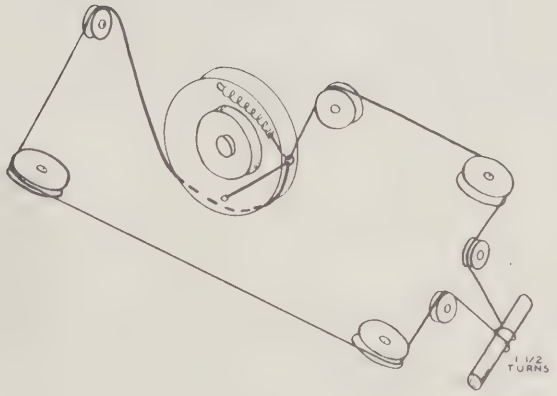
FM TUNER-TONE CONTROL-POWER SUPPLY



FM TUNER GANG DRIVE



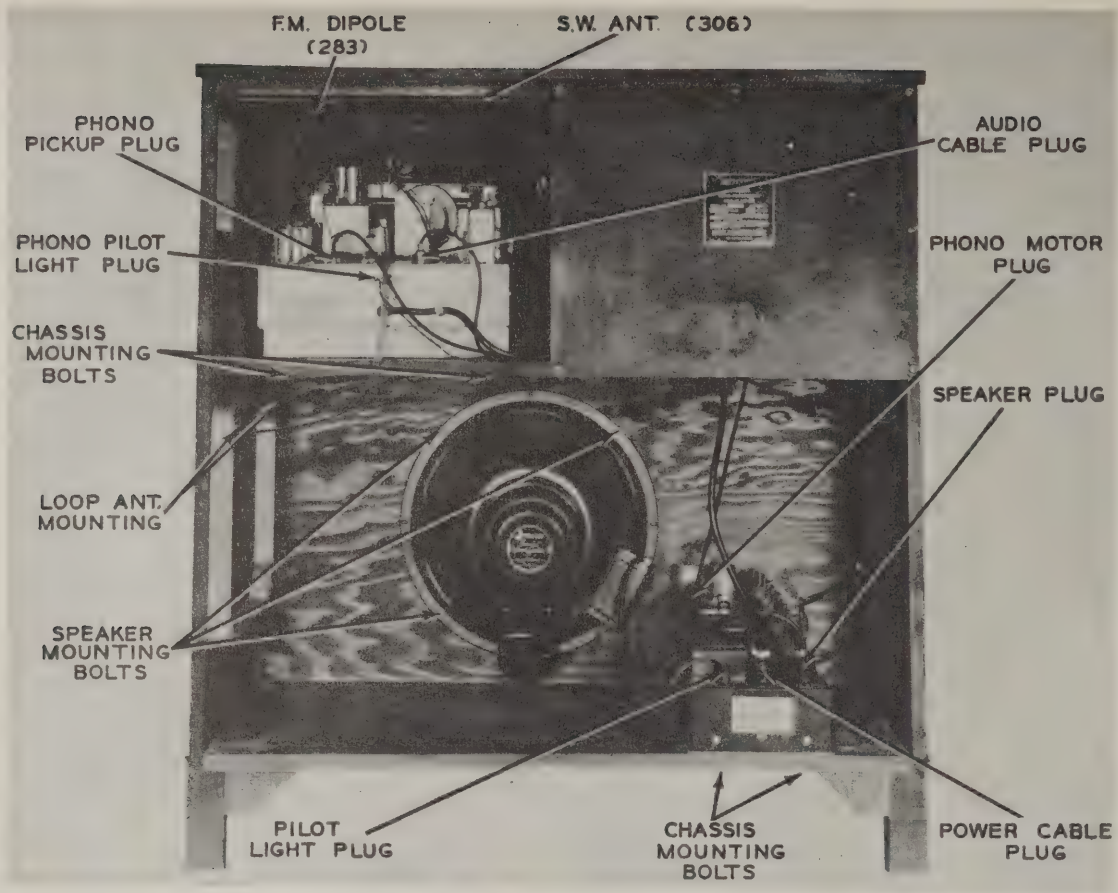
BANDSWITCH AND DIAL SCALE DRIVE



TUNING DIAL DRIVE

PUSHBUTTON ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
200 MMF.	High side to terminal #6 on ant. terminal strip. Low side to chassis.	1400KC	Pushbutton (Depress first push button from left.)	Set left knob to 1400KC.	Across voice coil	B1	Adjust for maximum output.
200 MMF.	"	"	"	"	"	B2	" " " "
Follow same procedure for aligning remaining pushbutton channels. Adjust B3, B5, B7, B9 and B11 to tune in generator signal and B4, B6, B8, B10 and B12 for maximum output. Make sure the button is depressed that corresponds to the channel being aligned.							

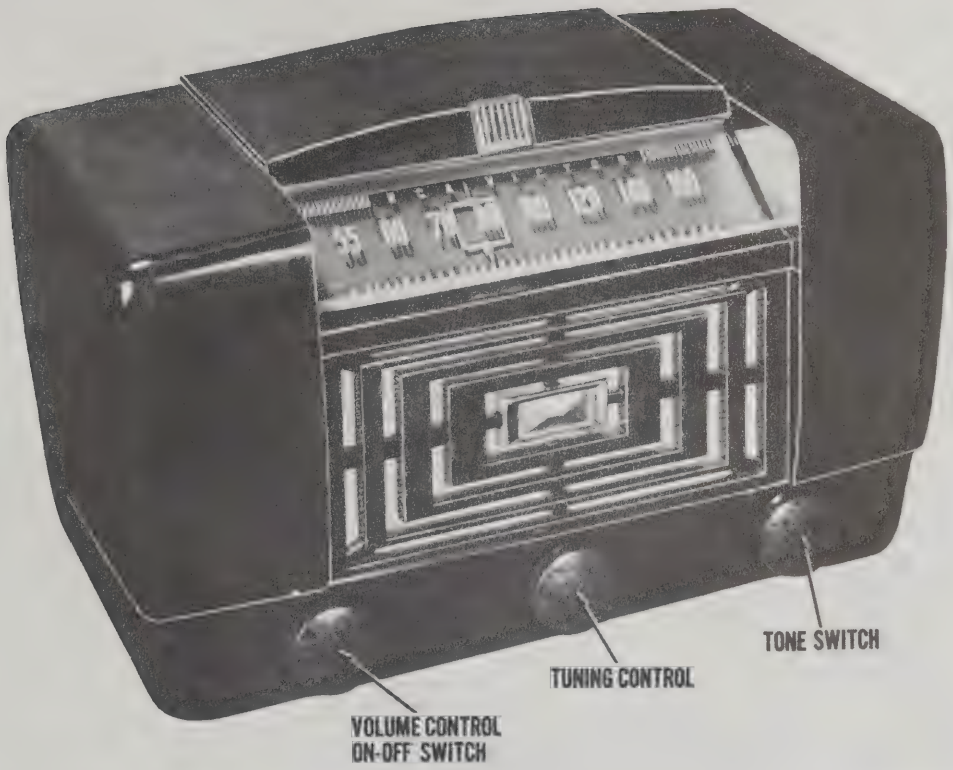


DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs from front of cabinet.
2. Remove celluloid plate over front panel.
3. Disconnect phono input plug from chassis.
4. Disconnect the audio output plug from chassis.
5. Disconnect phono compartment light tip jacks from rear of chassis.
6. Disconnect loop antenna leads from pins 7 and 8 of the antenna terminal strip.
7. Disconnect shortwave (SW) antenna from pin 1 of antenna terminal strip.
8. Disconnect FM antenna plug from chassis.
9. Remove nine wood screws and washers from rear of back board of phono compartment.
10. Disconnect power cable from audio and power supply chassis.
11. Remove four chassis mounting bolts and washers. Remove chassis. Note position of any additional washers under chassis used for positioning controls with respect to front panel.
12. Remove speaker plug from audio and power supply chassis.
13. Disconnect phono motor plug.
14. Disconnect plug for cabinet pilot light.
15. Remove five clamps holding audio cable.
16. Remove one clamp holding speaker cable and phono motor cable.
17. Remove four mounting bolts holding audio and power supply chassis. Remove chassis.
18. Remove four hex nuts and washers holding speaker. Remove speaker.
19. Remove wood screw holding leads to loop antenna.
20. Remove four wood screws holding loop antenna. Remove loop antenna.
21. Remove staples holding phono compartment light leads.
22. Remove two screws holding phono compartment light. Remove light.
23. Remove clamp holding leads to cabinet lamp.
24. Remove two screws holding cover over cabinet lamp.
25. Remove nuts holding cabinet lamp. Remove lamp.
26. Remove nineteen screws (self-tapping) holding bottom cover plate. Remove plate.

RCA MODEL 66X11 (Ch. RC-1046A); 66X12 (Ch. RC-1046; 66X13, 66X14, 66X15 (Ch. RC-1046B)

RCA MODEL 66X11 (Ch. RC-1046A); 66X12 (Ch. RC-1046; 66X13, 66X14, 66X15 (Ch. RC-1046B)



RCA MODEL 66X11 (Ch. RC-1046A); 66X12 (Ch. RC-1046; 66X13, 66X14, 66X15 (Ch. RC-1046B)

RCA MODEL 66X11

TRADE NAME	RCA Victor, Models 66X11 (Ch. RC-1046A), 66X12 (Ch. RC-1046), 66X13, 66X14, 66X15 (Ch. RC-1046B)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, N.J.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SG7 Mixer, 12J5GT Oscillator, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer 2-1/8" from left edge of dial backplate. Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD	High side to ext. ant. lead. Low side to B-.	1600KC	8-3/16" from left edge of dial backplate.	"	A5	Trimmer opposite A5 is preset at factory and normally need not be adjusted. If receiver will not calibrate pre-set this trimmer approx. 1/4 turn from fully closed. Adjust A5 for maximum output.
3	200MMFD	"	1300KC	Tune for maximum output.	"	A6	Adjust for maximum output.
4	200MMFD	"	600KC	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 & 4 until no further improvement can be made.

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DATE 10/47 SET #27 FOLDER #4717-20

PARTS LIST AND DESCRIPTIONS

RCA MODELS 66X11 (Ch. RC-1046A); 66X12 (Ch. RC-1046); 66X13, 66X14, 66X15 (Ch. RC-1046B).

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mixer	12SG7	12SQ7	8BK	
2	Osc.	12J5GT	12J5GT	6Q	
3	IF Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	39152	2N520	DSB-5030-150	TA-530	PRSA150-30-50	BRD3515	Filter - Green
B	50	150							" - Red
8	.05	400	70615	TP426	S-4-05	TC-15	484-05	DT4S5	Rect. Bypass
9	.02	400	70611	TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
10	.002	600	70601	TP405	S-6-002	TC-22	684-002	DT6D2	Tone Comp.
11	.005	400	70606	TP408	S-6-005	TC-25	484-005	DT6D5	Audio Coupling
12	.02	400	70611	TP423	S-4-02	TC-12	484-02	DT4S2	" "
13	.1	400	70617	TP428	S-4-1	TC-1	484-.1	DT4P1	Line Isolation
14	.01	400	70610	TP421	S-4-01	TC-11	484-01	DT4S1	Mixer Decoupling
15	.01	400	70610	TP421	S-4-01	TC-11	484-01	DT4S1	Mixer Cathode Bypass
16	.05	400	70615	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
17	.01	400	70610	TP421	S-4-01	TC-11	484-01	DT4S1	Ext. Ant. Isolation
18	330	500	72571	MC241	MO.5-33	1FM-33	1468-0003	5W5T3	AF Plate Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	½	38410	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch		" "	M-26	41	SW-A	" " " " "

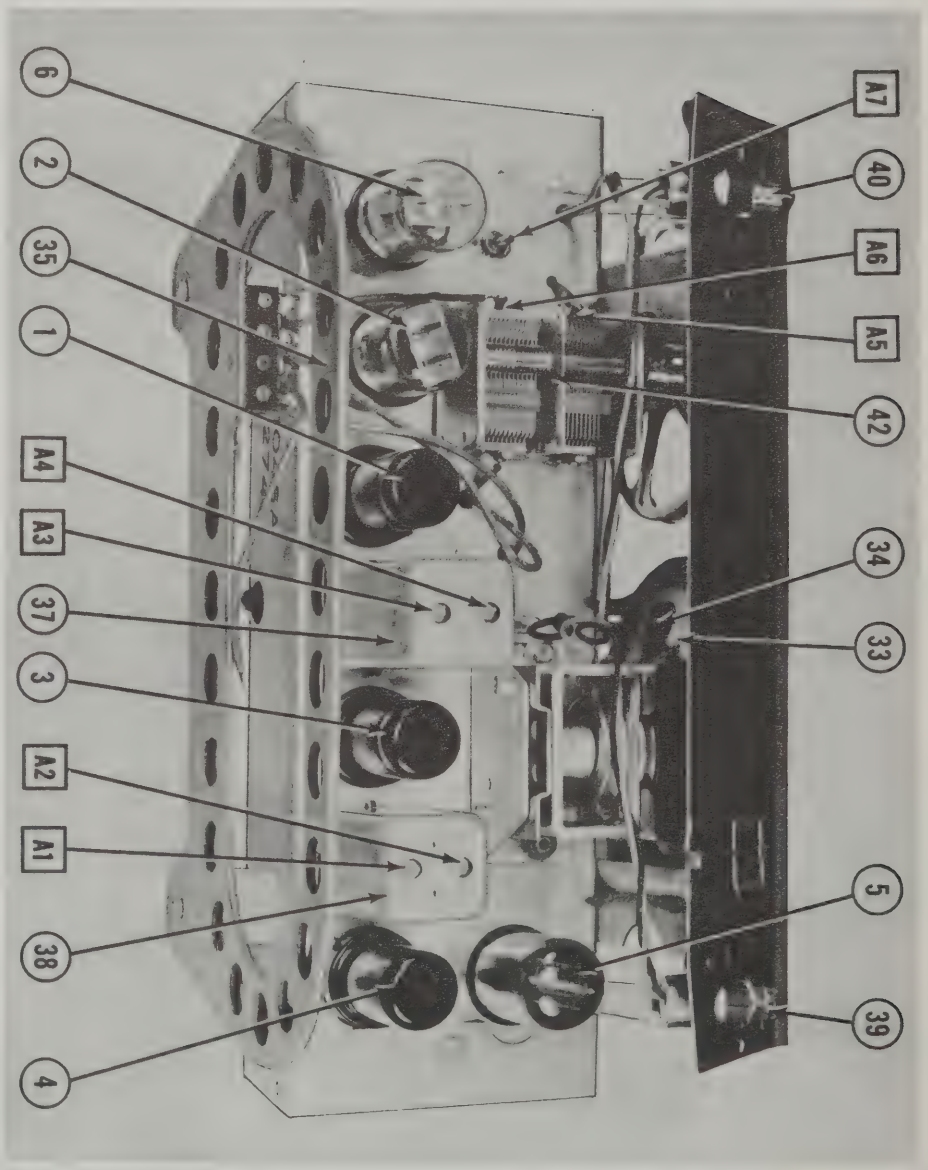
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	IDENTIFICATION CODES
20	3300Ω	½	30733	BTS-3300Ω	Or.-Or.-Red Mixer Cathode
21	22KΩ	½	30492	BTS-22K	Red-Red-Or. Oscillator Grid
22	1500Ω	½	30654	BTS-1500	Br.-Grn.-Red Mixer Decoupling
23	120Ω	½	30189	BW-½-120	Br.-Red-Br. IF Cathode
24	3.3 Meg.	½	31417	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
25	47KΩ	½	30787	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
26	4.7 Meg.	½	30931	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
27	220KΩ	½	14583	BTS-220K	Red-Red-Yl. AF Plate Load
28	470KΩ	½	30648	BTS-470K	Yl.-Vi.-Yl. Output Grid
29	120Ω	½	30189	BW-½-120	Br.-Red-Br. Output Cathode
30	1200Ω	1	38896	BTA-1200	Br.-Red-Red Filter
31	220KΩ	½	14583	BTS-220K	Red-Red-Yl. Line Isolation

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
32	2220Ω	3.4Ω	235Ω tapped @ 15Ω	.86Ω	36800	A-3876*		A-2928*	*Add extra filter to reduce hum level. Drill new mounting holes.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	RCA PART No.	JENSEN PART No.		
33	PM	3.4Ω	70413	ST-105† Mod. P5-X		†Fabricate new mounting bracket.
	CONE DIA.	VC DIA.				
34	4″	1/2″	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

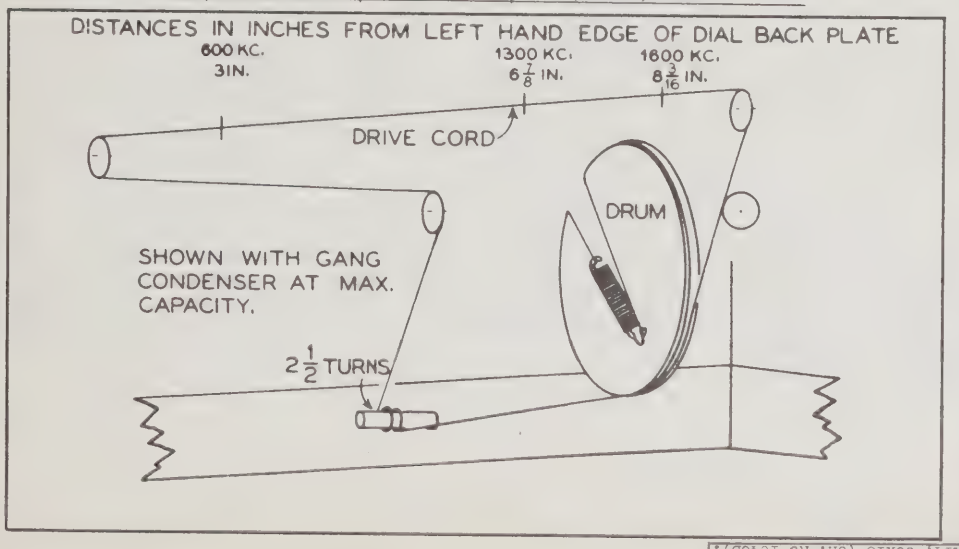
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	RCA PART No.	MEISSNER PART No.
35	Loop Ant.	.1Ω	1.8Ω	72697	
36	Osc. Coil	1.5Ω	4Ω	72604	
37	Input IF	10Ω	10Ω	70411	16-6658
38	Output IF	20Ω	18Ω	70412	

DIAL LIGHT

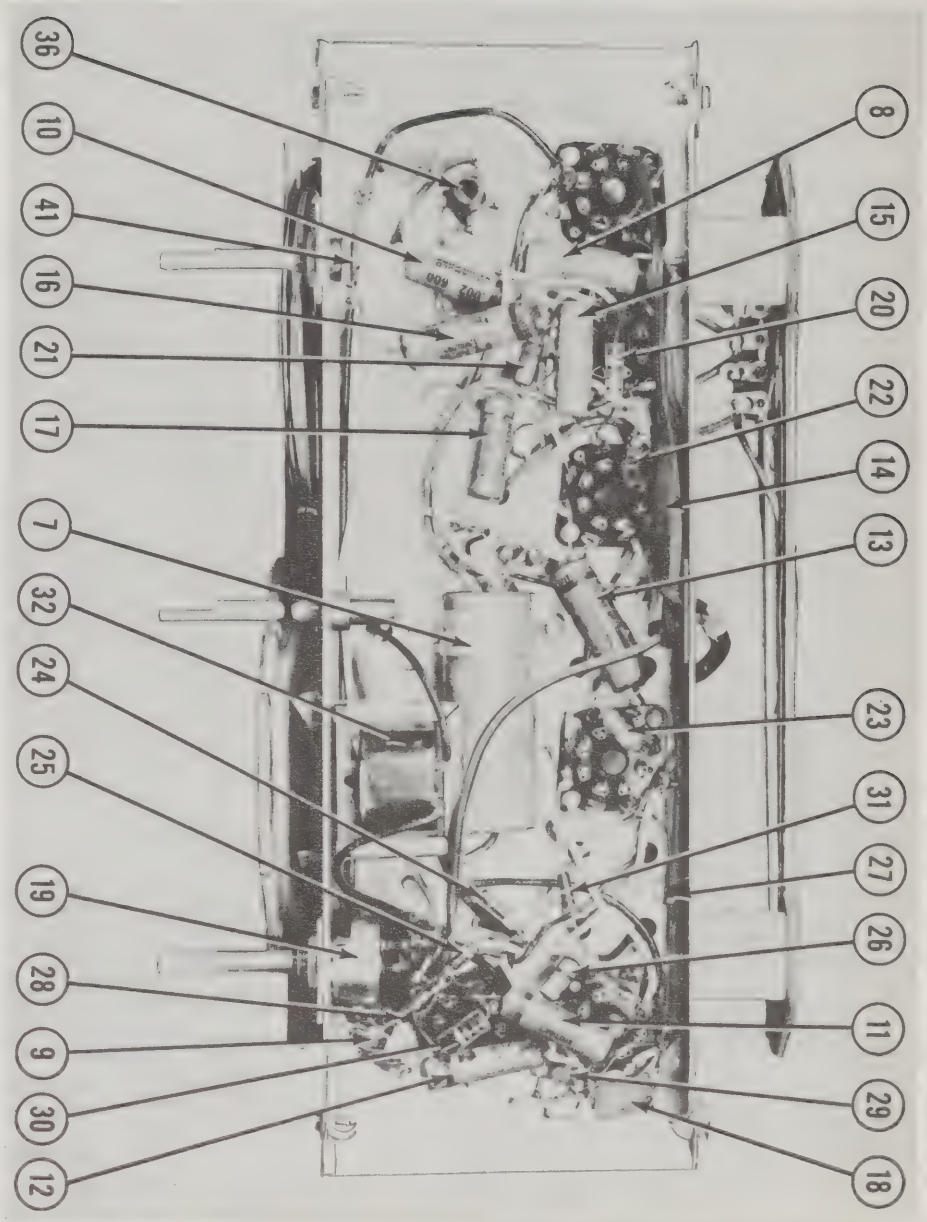
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					RCA PART No.		
39	Bayonet	3.2	0.16		71116		Type 1490
40	″	″	″		71116		″

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
41	Tone Switch	36228	S.P.S.T.
42	2 Gang Var. Cap	72607	30-465 MMF, 30-196 MMF
	Dial Scale	72652	66X11, 66X12
	″ ″	72798	66X13, 66X14, 66X15
	Dial Pointer	72606	66X11, 66X12
	″ ″	72799	66X13, 66X14, 66X15

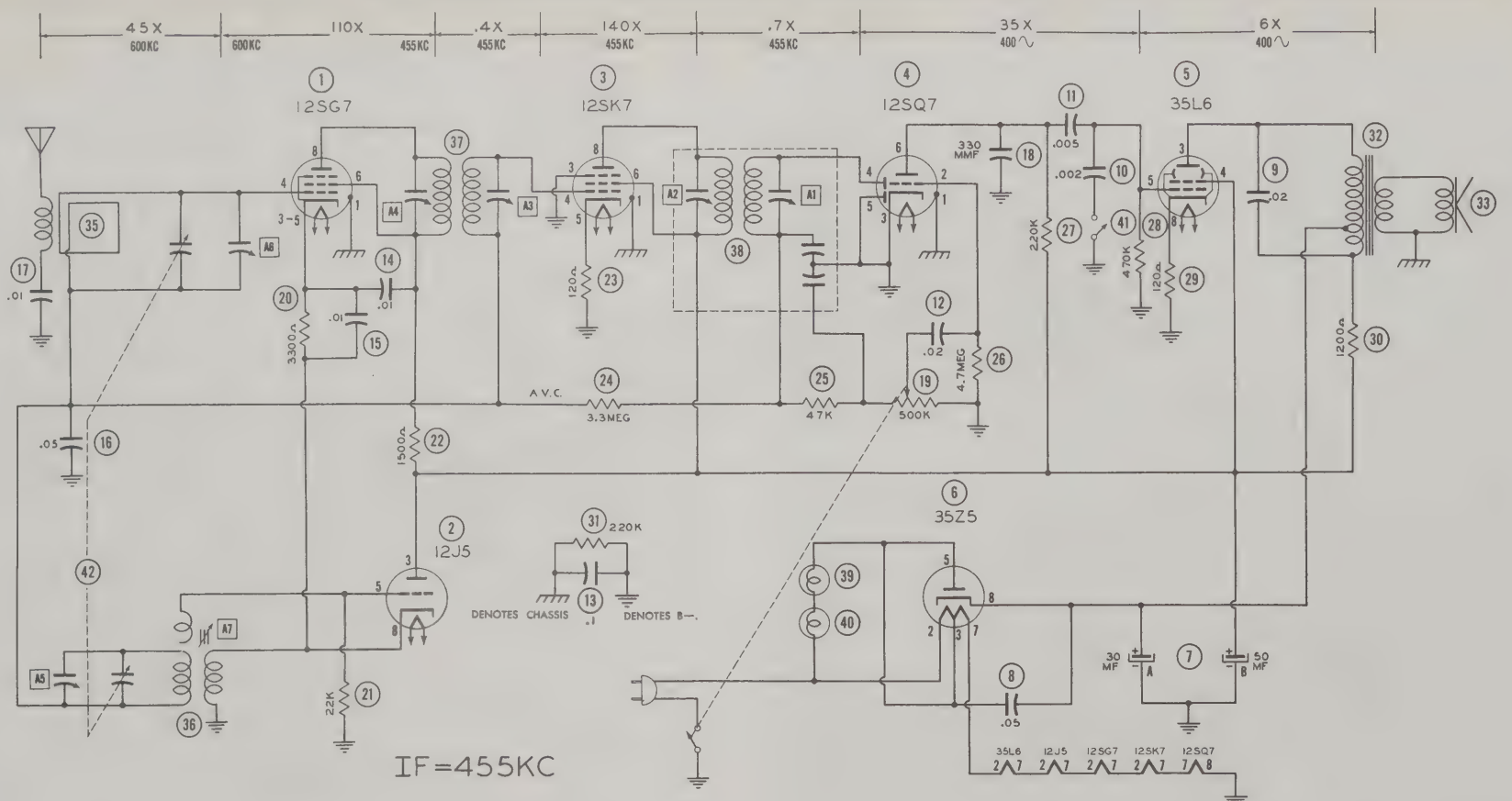


CHASSIS—BOTTOM VIEW



RCA MODELS 66X11 (Ch. RC-1046A); 66X12 (Ch. RC-1046); 66X13, 66X14, 66X15 (Ch. RC-1046B)

RCA MODELS 66X11 (Ch. RC-1046A); 66X12 (Ch. RC-1046); 66X13, 66X14, 66X15 (Ch. RC-1046B).



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SG7	0V.	38VAC	5.4VDC	0V.	..4VDC	90VDC	85VDC	90VDC
2	12J5GT	0V.	50VAC	93VDC	0V.	-6.2VDC§	0V.	38VAC	0V.
3	12SK7	0V.	25VAC	0V.	0V.	1.5VDC	93VDC	13VAC	93VDC
4	12SQ7	0V.	-.8VDC	0V.	-1.9VDC	0V.	55VDC	13VAC	0V.
5	35L6GT	0V.	87VAC	113VDC	93VDC	0V.	122VDC	50VAC	5.2VDC
6	35Z5GT	0V.	117VAC	112VAC	0V.	112VAC	0V.	87VAC	122VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SG7	260KΩ	37Ω	3.3KΩ	4 Meg.	3.3KΩ	42KΩ	25Ω	42KΩ
2	12J5GT	INF.	50Ω	40KΩ	0Ω	22KΩ	0Ω	37Ω	1.5Ω
3	12SK7	260KΩ	25Ω	0Ω	4 Meg.	120Ω	40KΩ	13Ω	40KΩ
4	12SQ7	260KΩ	5 Meg.	0Ω	450KΩ	0Ω	240KΩ	13Ω	0Ω
5	35L6GT	INF.	85Ω	40KΩ	40KΩ	500KΩ	40KΩ	50Ω	130Ω
6	35Z5GT	INF.	115Ω	112Ω	INF.	112Ω	INF.	55Ω	40KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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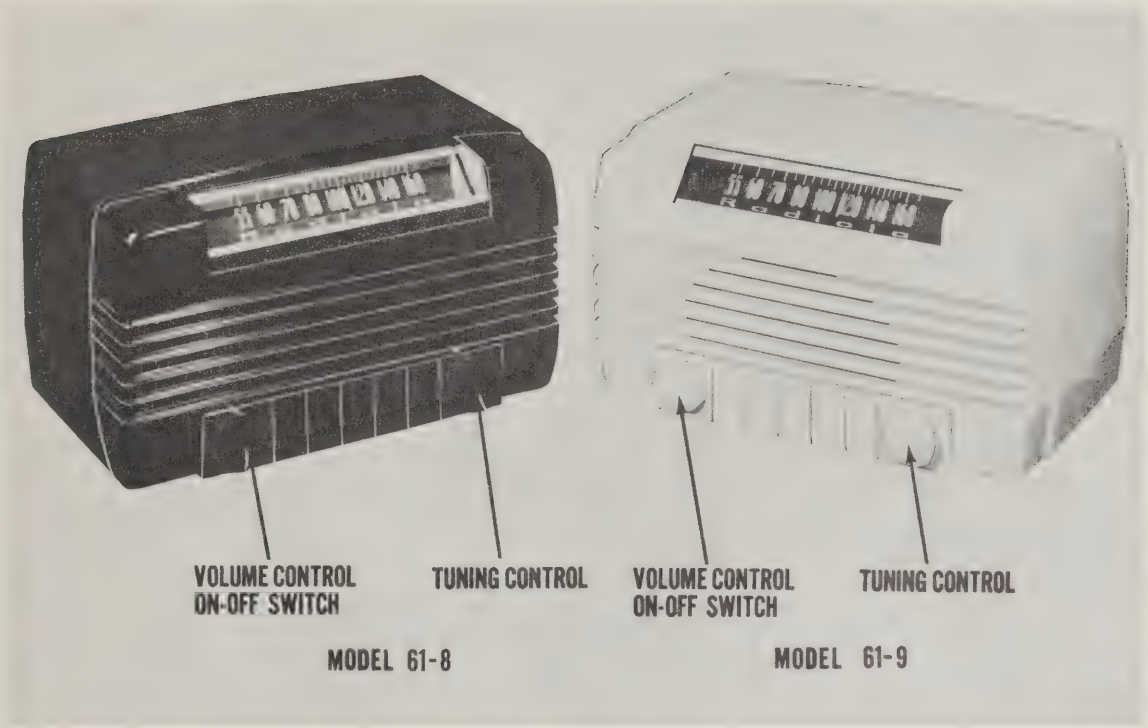
4717-20

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RADIOLA MODELS
61-8, 61-9 (Ch. RC-1034)



RADIOLA MODELS
61-8, 61-9 (Ch. RC-1034)

TRADE NAME	Radiola, Models 61-8, 61-9 (Ch. RC-1034)
MANUFACTURER	Radio Corp. of America, Home Instrument Div., Camden, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC RATING .270 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Set dial pointer at left-hand end calibration mark with rotor in full mesh. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to pin #4 (grid) 12SK7. Low side to chassis.	455KC	Quiet point at high freq. end of dial.	Across voice coil	A1,A2	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to chassis and decrease dummy ant. to prevent excessive hum modulation.
2	.1 MFD.	High side to pin #8 (grid) 12SA7. Low side to chassis.	"	"	"	A3,A4.	"
3	200MMFD	High side to ant. lead. Low side to chassis.	1300KC	1300KC	"	A5,A6.	Adjust for maximum output. Use isolation transformer or isolating capacitor.
4	200MMFD	"	600KC	600KC (rock rotor)	"	A7	"

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DATE 10/47 SET #27 FOLDER #4717-21

PARTS LIST AND DESCRIPTIONS

RADIOLA MODELS 61-8, 61-9

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RADIOLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RADIOLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	70408	2N520	M-50+30-150	TA-530	PRS150-40-40	BRD3515	Filter - Red 95676-1
B	30	150							"
7	.05	400	70615	TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
8	.02	400	70611	TP423	S-4-02	TC-12	484-02	DT4S2	50L6 Plate Bypass
9	.005	400	70606	TP408	S-6-005	TC-25	484-005	DT6D5	Audio Coupling
10	.02	400	70611	TP423	S-4-02	TC-12	484-02	DT4S2	" "
11	.05	400	70615	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	.1	400	70617	TP428	S-4-1	TC-1	484-.1	DT4P1	Line Isolating
13	.01	200	70610	TP421	S-4-01	TC-11	484-01	DT4S1	Ant. Coupling
14	330	500	39640	MC241	M0.5-33	1FM-33	1468-0003	5W5T3	Audio Plate Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RADIOLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
15A	500KΩ	1	70322	MR48	D13-133	M-60-Z	Volume Control-See Note 1
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 15A per instructions
C	Switch		" "	M26T	47	SW-A6	" " " " "

Note 1 - Install a 50KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

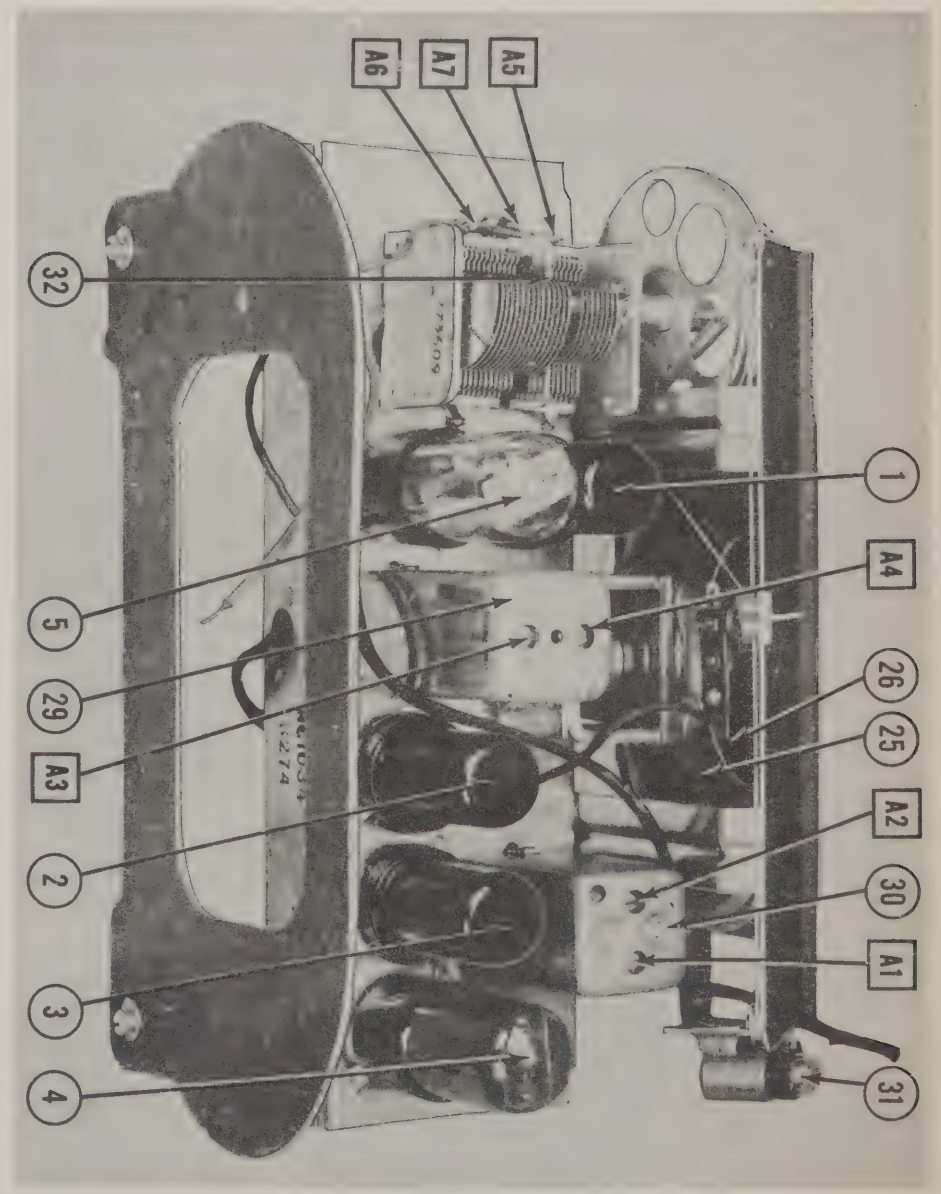
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RADIOLA PART No.	IRC PART No.	IDENTIFICATION CODES
16	22KΩ	½	30492	BTS-22K	Red-Red-Or. Osc. Grid
17	220KΩ	½	14583	BTS-220K	Red-Red-Yl. Line Isolating
18	3.3 Meg.	½	31417	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
19	4.7 Meg.	½	30931	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
20	220KΩ	½	14583	BTS-220K	Red-Red-Yl. 1st AF Plate Load
21	470KΩ	½	30648	BTS-470K	Yl.-Vi.-Yl. Output Grid
22	120Ω	½	30189	BW-½-120	Br.-Red-Br. Output Cathode
23	1200Ω	1	6134	BTA-1200	Br.-Red-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RADIOLA PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
24	1800Ω	2.85Ω	220Ω tapped @ 9Ω	.67Ω	70385	A-3876†		A-2928†	†Add filter if necessary to reduce hum level.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: RADIOLA PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
25	PM	3.5Ω	70470			
	CONE DIA.	VC DIA.				
26	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: RADIOLA PART No.	MEISSNER PART No.
27	Loop Ant.	.2Ω	1.5Ω	70468	
28	Osc. Coil	.5Ω	4Ω	70477	
29	Input IF	14.5Ω	13.5Ω	70465	16-6658
30	Output IF	17Ω	17.5Ω	70466	16-6670*

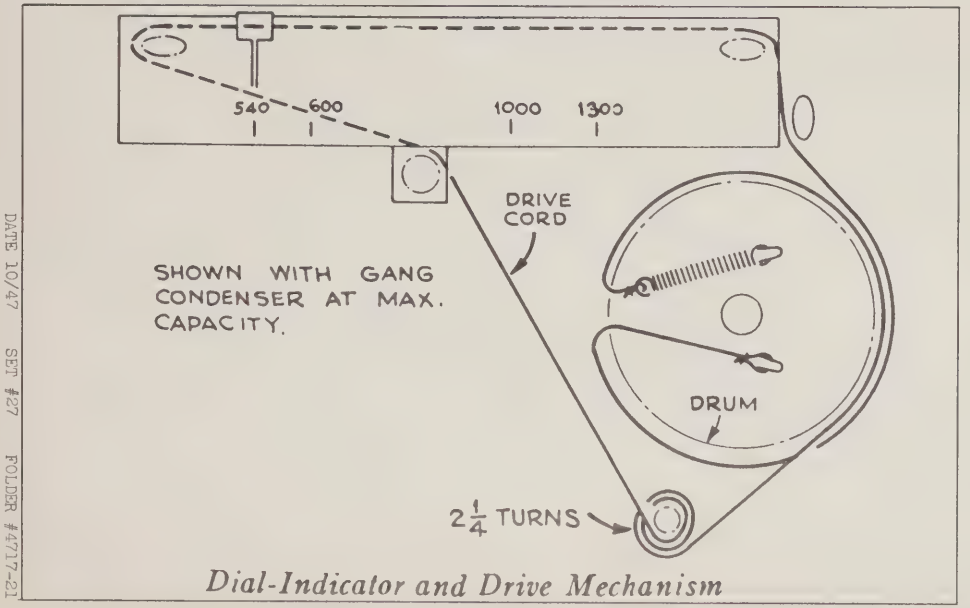
*Remove 47KΩ resistor in IF can and add to low side of secondary.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: RADIOLA PART No.		INSTALLATION NOTES
31	Bayonet	6-8	0.2	White	11765		Type 51

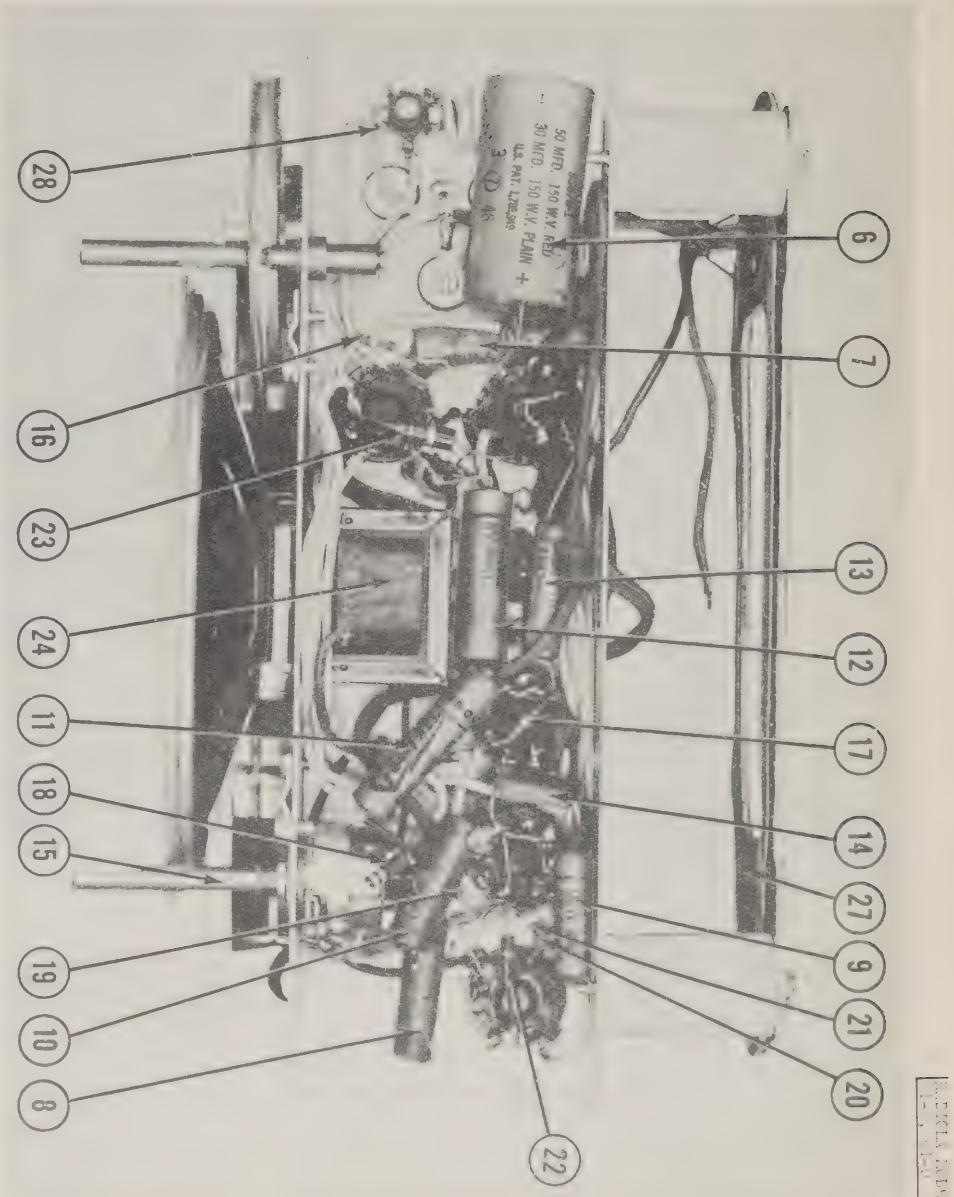
MISCELLANEOUS

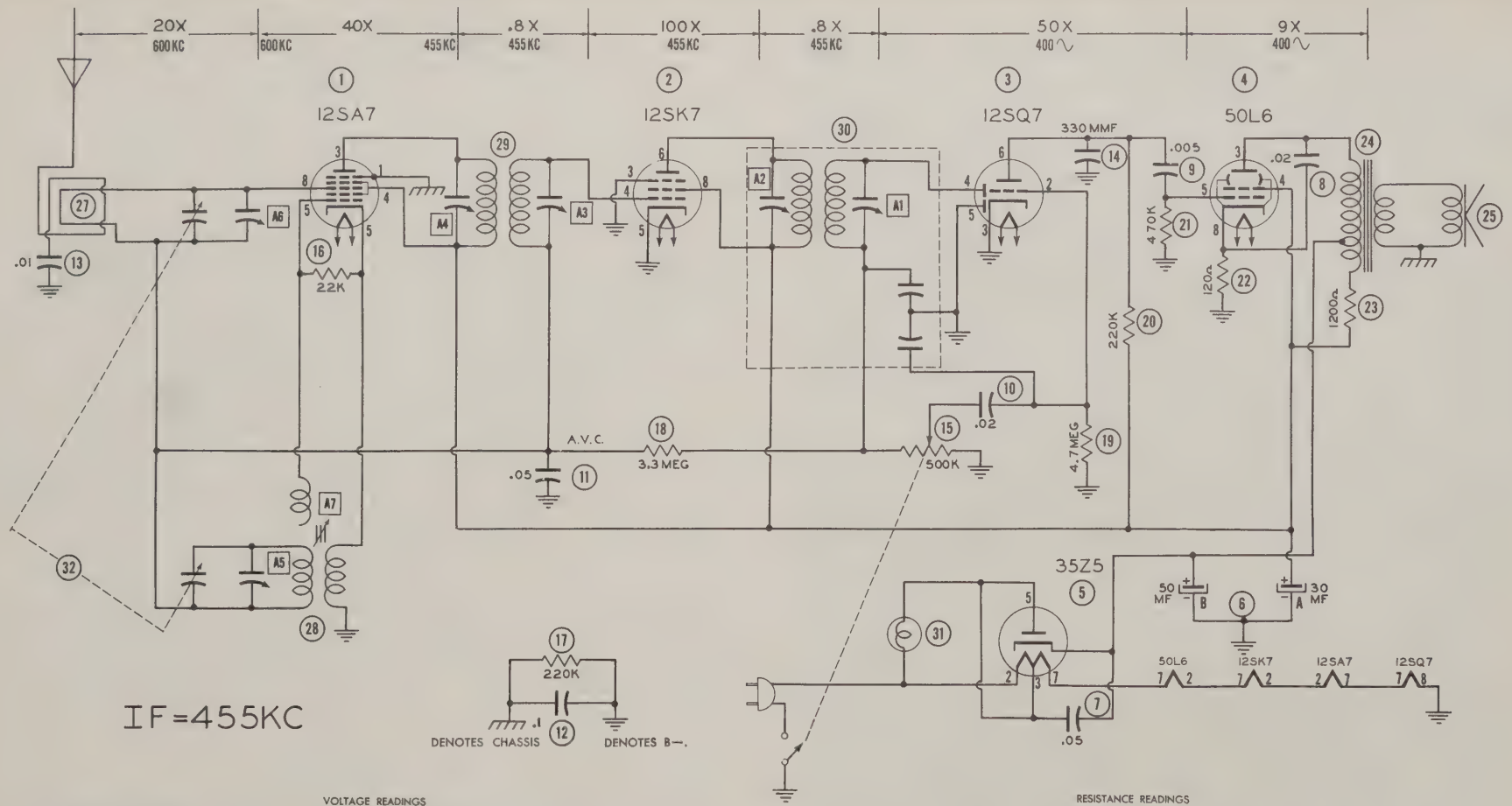
ITEM No.	PART NAME	RADIOLA PART No.	NOTES
32	Tuning Cap.	70463	2 Gang Variable Complete
	Indicator	70469	Station Selector
	Dial Scale	71796	Glass
	Knob	70474	Control - Ivory 61-9
	"	70473	" - Walnut 61-8
	Spring	30900	Retaining Spring for Knob



Dial-Indicator and Drive Mechanism

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	26VAC	82VDC	82VDC	-3VDC§	0V.	13VAC	-.3VDC
2	12SK7	0V.	26VAC	0V.	-.3VDC	0V.	82VDC	38.5VAC	82VDC
3	12SQ7	0V.	-.4VDC	0V.	-.2VDC	0V.	55VDC	13VAC	0V.
4	50L6GT	0V.	38.5VAC	112VDC	82VDC	0V.	0V.	87VAC	5.1VDC
5	35Z5GT	0V.	117VAC	113VAC	0V.	113VAC	122VDC	87VAC	122VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	245KΩ	25.5Ω	160KΩ	160KΩ	22KΩ	.5Ω	13Ω	4 Meg.
2	12SK7	245KΩ	25.5Ω	0Ω	4 Meg.	0Ω	.60KΩ	37Ω	160KΩ
3	12SQ7	245KΩ	5 Meg.	0Ω	580KΩ	0Ω	380KΩ	13Ω	0Ω
4	50L6GT	INF.	37Ω	160KΩ	160KΩ	430KΩ	INF.	85Ω	110Ω
5	35Z5GT	INF.	115Ω	112Ω	INF.	112Ω	191Ω	65Ω	190KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4717-21

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

REGAL MODEL 747
BATTERY OPERATED

REGAL MODEL 747
BATTERY OPERATED

REGAL MODEL 747

TRADE NAME	Regal, Model 747
MANUFACTURER	Regal Electronics Corp., 20 W. 20th St., New York, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output
POWER SUPPLY	110-120 Volts AC-DC or 7½ Volt "A" Supply & 67½ Volt "B" Supply
RATING	.160 Amp. @ 117 Volts AC or 52 MA @ 7.5 Volts DC & 9MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to left stator of tuning cap. Low side to chassis.	455KC	Tuning cap. open completely.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation, transformer reduce dummy ant. to 200 MMF. to reduce hum modulation.
2		Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1500KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 10/47 SET #27 FOLDER #4717-22

PARTS LIST AND DESCRIPTIONS

REGAL MODEL 747
BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		REGAL PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	REGAL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5A	50	150		2N520	DSB-5030-150	TA-530	PRSA150-50-50	EZ5515	Filter - Yellow
B	30	150							" - Red
C	200	25		TC2501	M-250-25	UHC-202	PRS25-100	BRH2525	Fil. Bypass-Green
6	.05	400	50-103	TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
7	.002	400	50-110	TP405	S-6-002	TC-22	484-002	DT6D2	Output Plate Bypass
8	.002	600	50-110	TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
9	.05	400	50-109	TP426	S-4-05	TC-15	484-05	DT4S5	AF Screen Bypass
10	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.05	150	50-109	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	.05	150	50-109	TP426	S-4-05	TC-15	484-05	DT4S5	IF Screen Bypass
13	100	500	55-107	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
14	100	500	55-107	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter
15	100	500	55-107	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid
16	10	500		MC215	MO.5-41	MS-41	1468-00001	5W5Q1	Fixed Trimmer

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	REGAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	1 Meg.	½	20-102	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

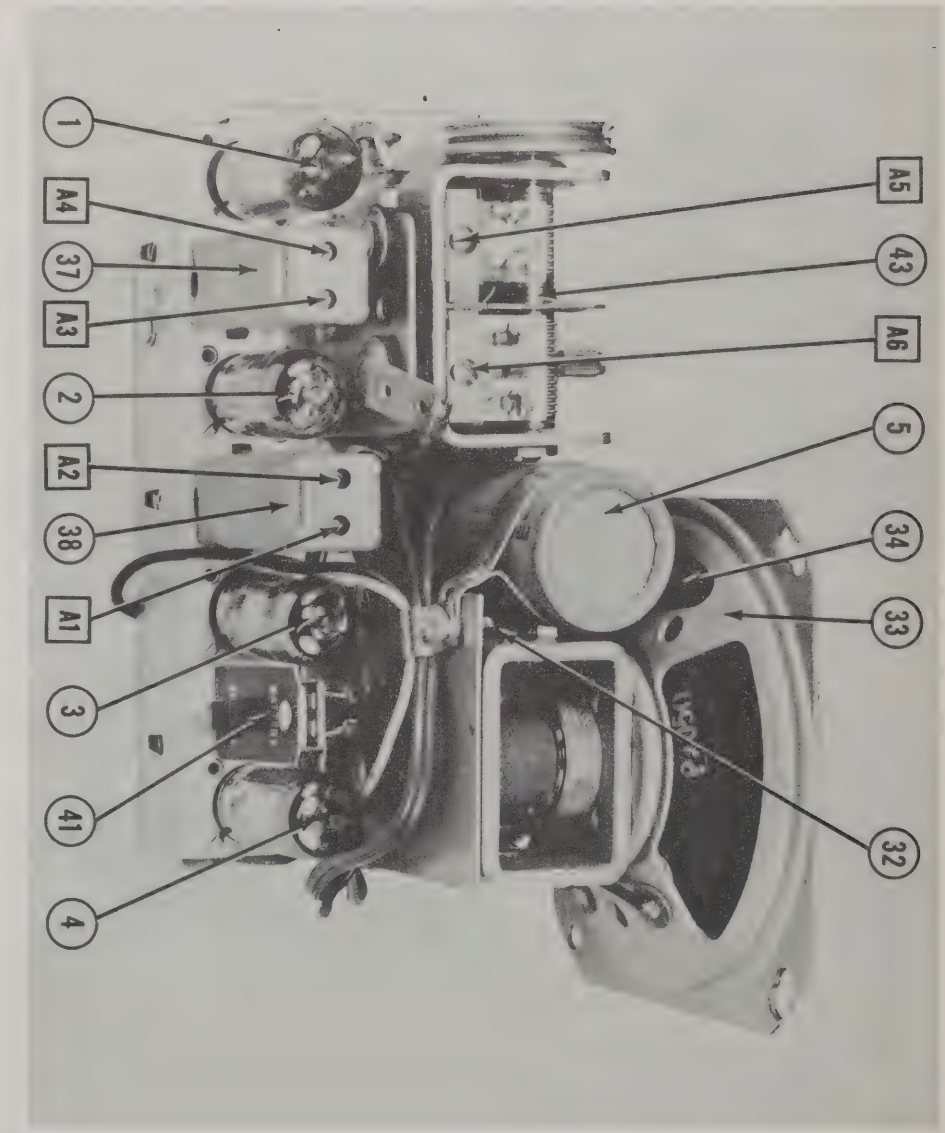
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	REGAL PART No.	IRC PART No.	
18	100KΩ	½	65-125	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
19	6800Ω	½	65-131	BTS-6800	Blue-Gray-Red IF Decoupling
20	2.2 Meg.	½	65-138	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
21	10 Meg.	½	65-129	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
22	4.7 Meg.	½	65-128	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
23	1 Meg.	½	65-126	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
24	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode RF Filter
25	2.2 Meg.	½	65-138	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
26	270Ω	1	65-123	BW-1-270	Red-Vi.-Br. Bias
27	51Ω	1	65-122	BW-1-47	Grn.-Br.-Blk. Surge Limiter
28	2000Ω	2	65-132	BT-2-2200	Red-Blk.-Red Filter
29	2500Ω	10	70-101	AB-2500	Filament String
30	1000Ω	½	65-136	BTS-1000	Br.-Blk.-Red " "
31	510Ω	½	65-133	BTS-560	Grn.-Br.-Br. " "

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		REGAL PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
32	6000Ω	3.5Ω	330Ω	.6Ω	Part of 110-103	A-3878	T22546	A-2931	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			REGAL PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-113*		*Fabricate new mounting bracket.
33	PM	3.5Ω	110-103	Mod. P4-X		
	CONE DIA.	VC DIA.				
34	4"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

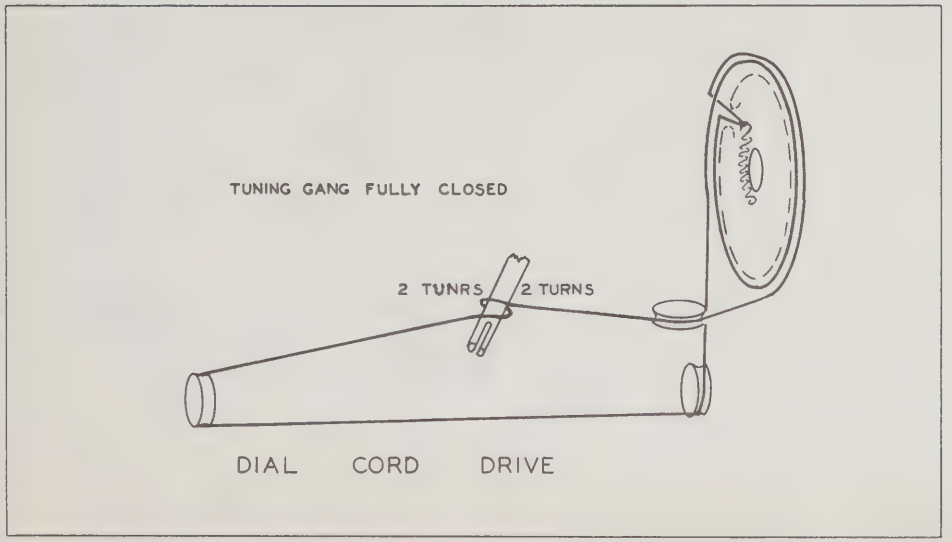
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	REGAL PART No.	MEISSNER PART No.
35	Loop Ant.		2Ω	30-117	
36	Osc. Coil	2Ω	6.5Ω	30-120	14-1040
37	Input IF	19Ω	19Ω	30-114	16-6668
38	Output IF	19Ω	19Ω	30-114	16-6669

BATTERIES

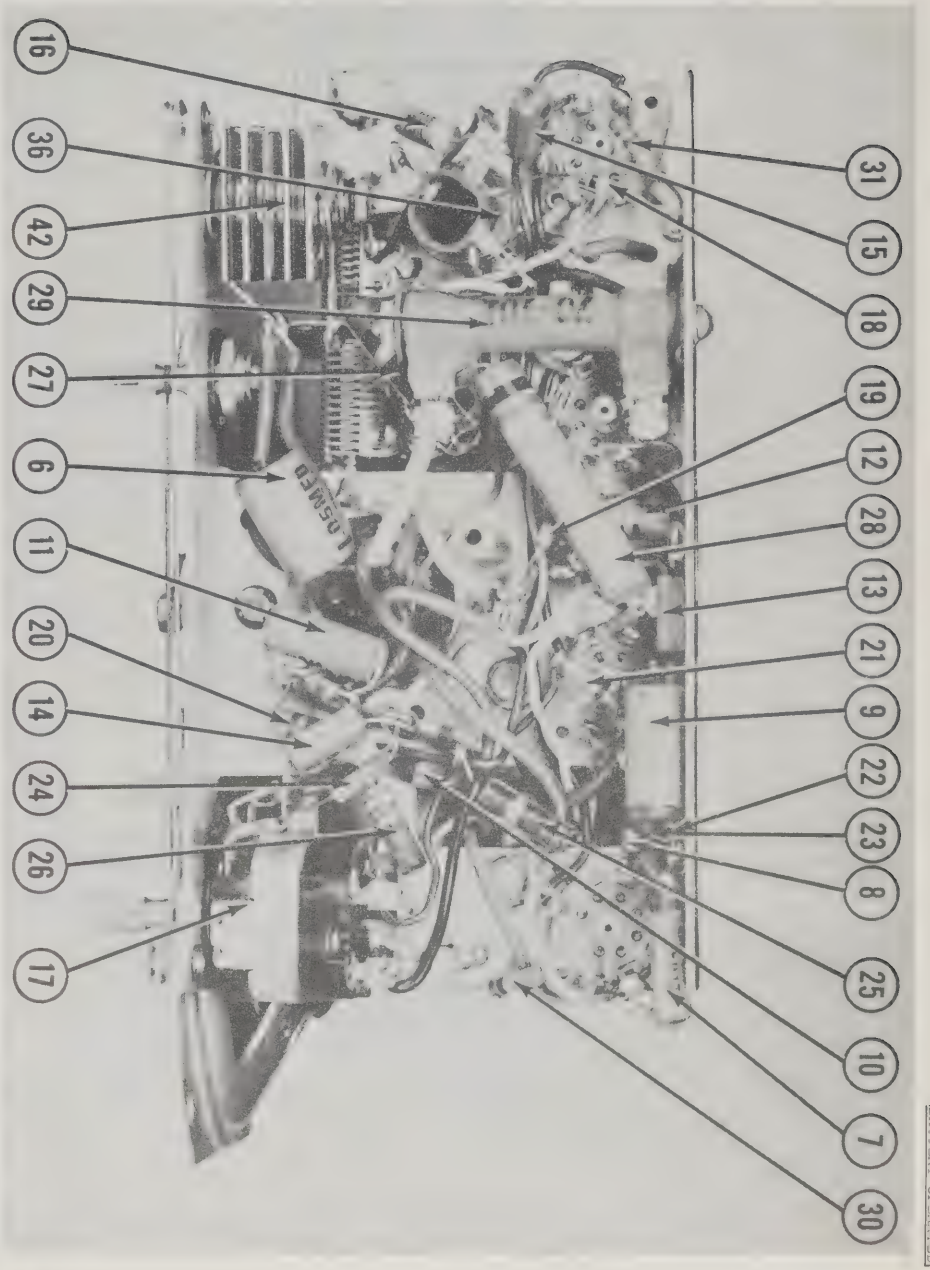
ITEM No.	VOLTAGE	REGAL PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
39	7.5V "A"		(5)#950			5 Used in series
40	67.5V "B"			#467		

MISCELLANEOUS

ITEM No.	PART NAME	REGAL PART No.	NOTES
41	Switch	95-107	Power Change-Over
42	Rectifier	65-122	Selenium
43	2 Gang Var. Cap.	40-106	34-470 MMF, 27-190 MMF

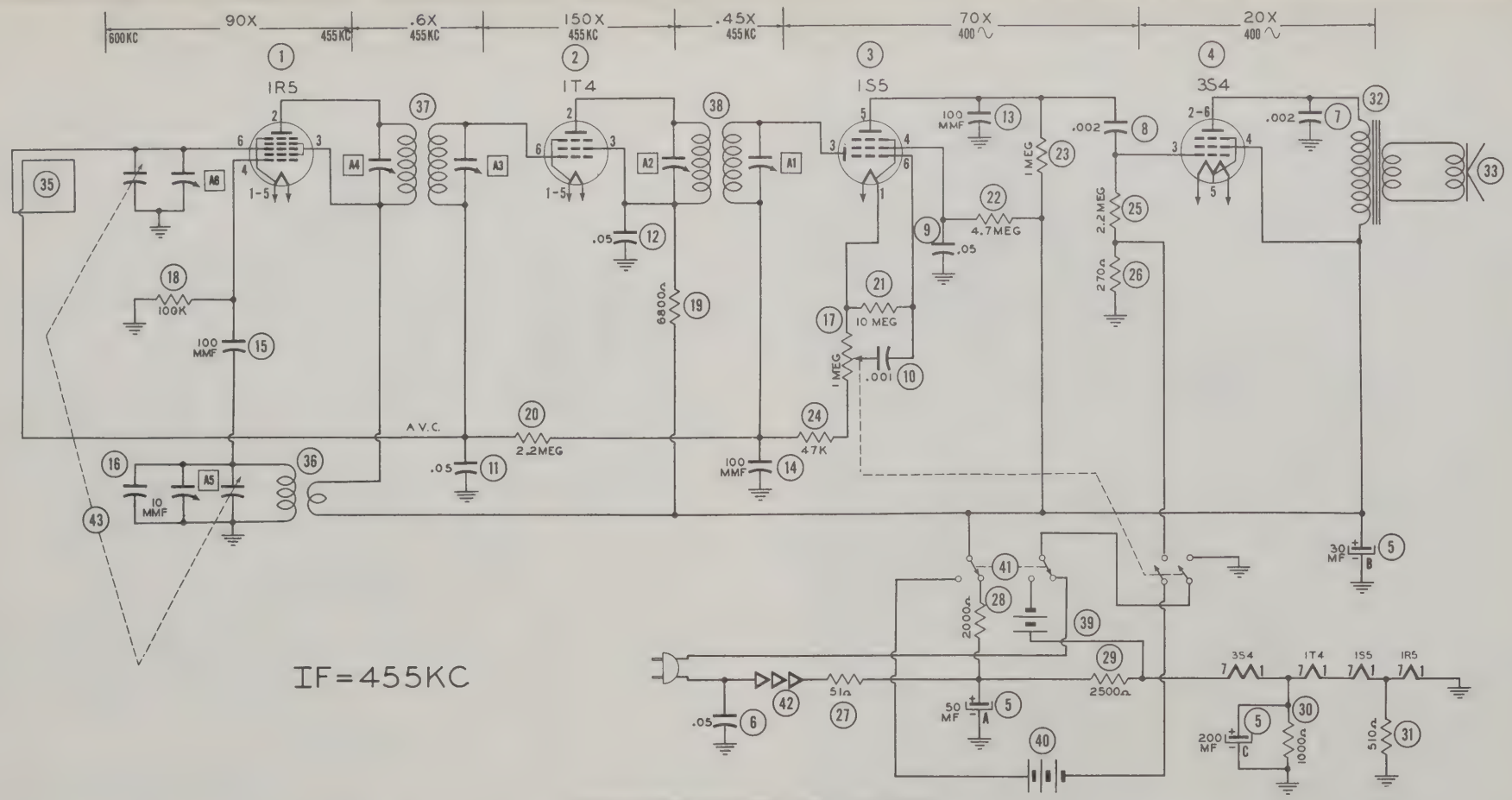


CHASSIS—BOTTOM VIEW



REGAL MODEL 747
BATTERY OPERATED

REGAL MODEL 747
BATTERY OPERATED



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	76VDC	76VDC	-42VDC§	0V.	.1VDC	1.6VDC
2	1T4	3.2VDC	62VDC	62VDC	.1VDC	3.2VDC	.1VDC	4.8VDC
3	1S5	1.6VDC	76VDC	.2VDC	12VDC	17VDC	0V.	3.2VDC
4	3S4	4.8VDC	72VDC	0V.	76VDC	6.3VDC	72VDC	7.7VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0Ω	4.5KΩ	4.5KΩ	10KΩ	0Ω	2.5 Meg.	*
2	1T4	*	11KΩ	11KΩ	2.5 Meg.	*	2.5 Meg.	*
3	1S5	*	4.5KΩ	1 Meg.	4.7 Meg.	1 Meg.	10 Meg.	*
4	3S4	*	5KΩ	2.5 Meg.	4.5KΩ	*	5KΩ	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4717-22

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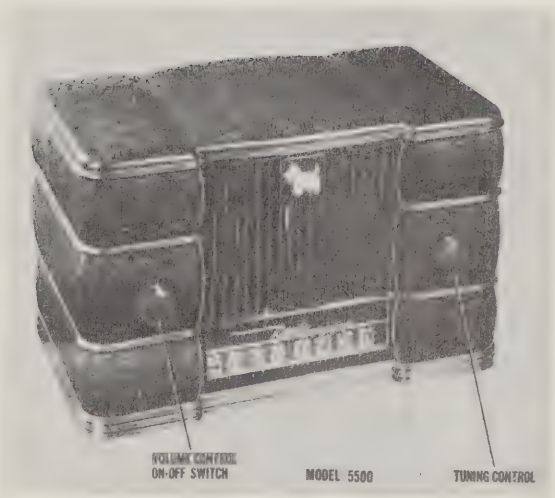
1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

REMLER MODELS 5500, 5510
"Scottie Pup", 5520, 5530 "Scottie Junior"



REMLER MODELS 5500, 5510
"Scottie Pup", 5520, 5530 "Scottie Junior"

TRADE NAME	Remler, Models 5500, 5510 ("Scottie Pup"), 5520, 5530 ("Scottie Junior")
MANUFACTURER	Remler Co., Ltd., 2101 Bryand St., San Francisco, Calif.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	535-1720KC RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set left edge of pointer saddle 3/16" from left edge of dial backplate. Use isolation transformer if available. If not connect a .1 MFD. capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1500KC	1500KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maxi- output.	"	A6	Adjust for maximum output.

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DATE 10/47 SET #27 FOLDER #4717-23

PARTS LIST AND DESCRIPTIONS

REMLER MODELS 5500, 5510 "Scottie", 5500, 5505 "Scottie Junior"

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: REMLER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter		12SA7	8R	
2	IF Amp.		12SK7	8N	
3	Det.-AVC-AF		12SQ7	8Q	
4	Power Output		50L6GT	7AC	
5	Rectifier		35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: REMLER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	60	150		2N521	DSB-2x50-150	TA505	PRSA-150-50-50	EZ5515	Filter - Red
B	40	150							" - Yellow
7	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	Output Plate Bypass
8	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
9	.004	600		TP407	S-6-004	TC-24	684-004	DT6D4	" "
10	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
11	.2	200		TP419	S-4-2	TC-2	484-.2	DT4P2	Line Isolation
12	.05	600		TP415	MPH-6-05	TC-15	684-05	DT6S5	Line Filter
13	500			MC245	MO.5-35	1FM-35	1468-0005	5W5T5	AF Plate Bypass
14	500			MC245	MO.5-35	1FM-35	1468-0005	5W5T5	Diode RF Filter
15	70			MC-30		1FM-475	1468-000675	5W5Q7	Osc. Grid Cap.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REMLER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	1 Meg.	½		MR53	D13-137	M-63-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

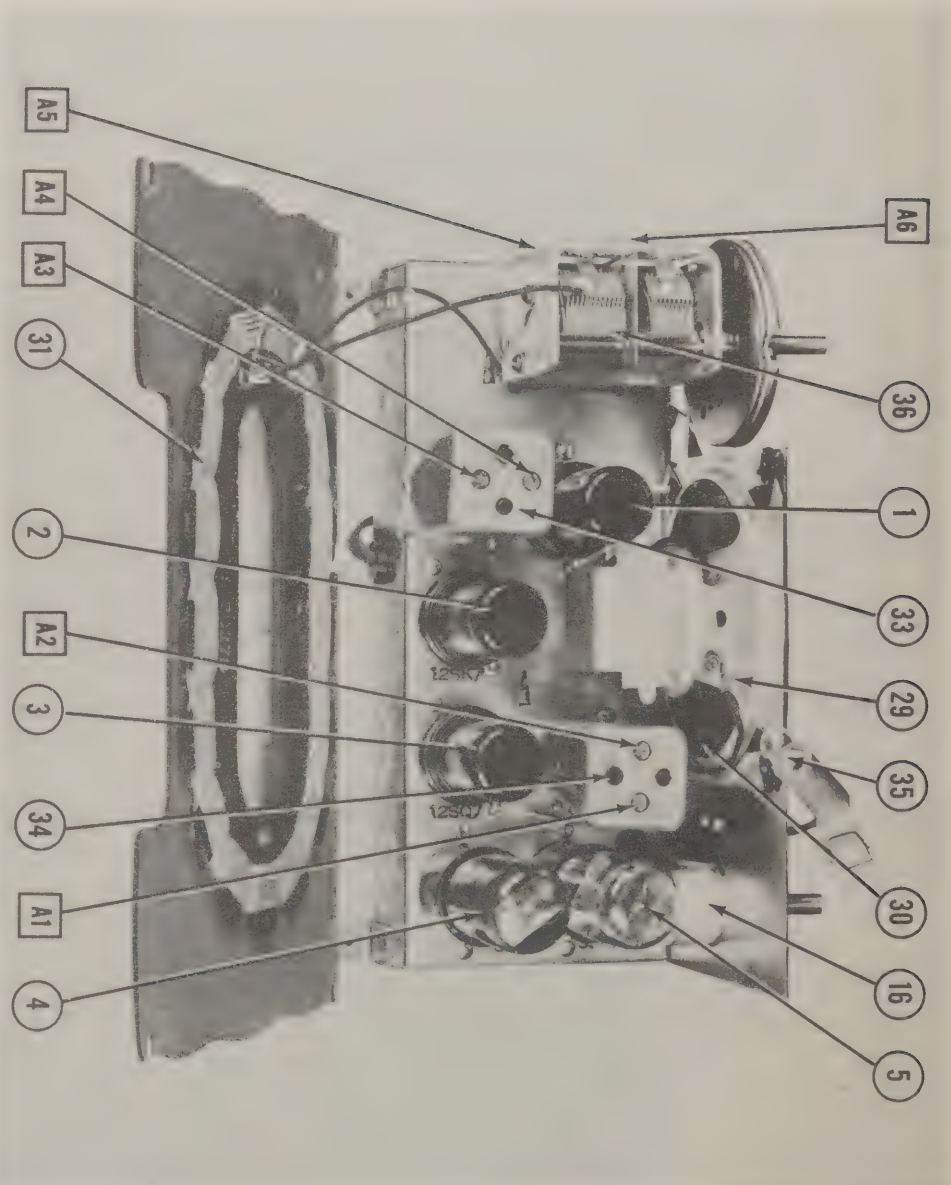
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REMLER PART No.	IRC PART No.	IDENTIFICATION CODES
17	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
18	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Line Isolation
19	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
20	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
21	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
24	2200Ω	1		BTA-2200	Red-Red-Red Filter
25	33Ω	½		BW-½-33	Red-Red-Blk. Surge Limiter
26	47Ω	1		BW-1-47	Yl.-Vi.-Blk. Pilot Light Shunt
27	100Ω	½		BW-½-100	Br.-Blk.-Br. IF Cathode-See Note

Note-Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: REMLER PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
28	2500Ω	3.0Ω	190Ω	.6Ω	7-31	A-3876	T22S45	A-2[illegible]	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			REMLER PART No.	JENSEN PART No.		
[illegible]	FIELD [illegible]	VC IMP. [illegible]		[illegible]		
30	4" DIA.	VC DIA. ½"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

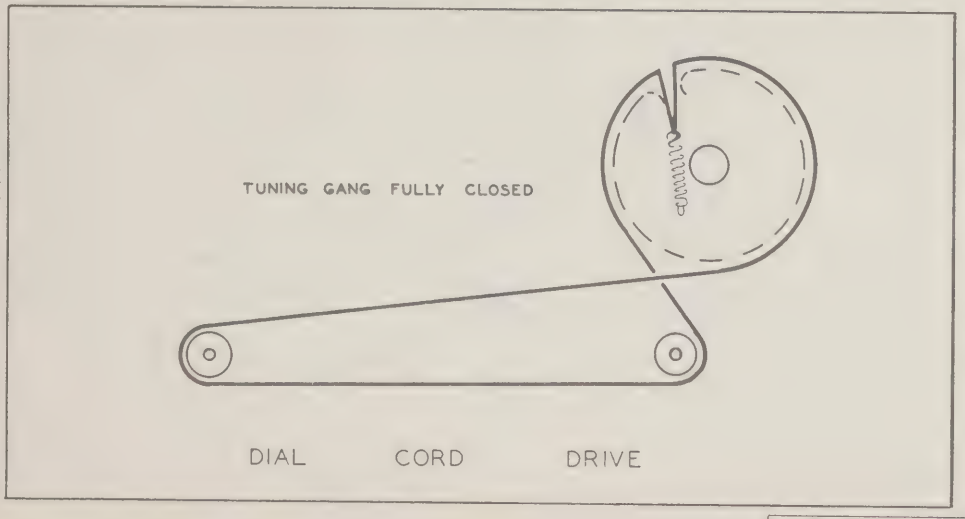
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	REMLER PART No.	MEISSNER PART No.	
31	Loop Ant.	1Ω	1Ω			
32	Osc. Coil	1Ω	6Ω	14-1040		
33	Input IF	15Ω	11Ω	16-6658		
34	Output IF	11Ω	15Ω	16-6660		

DIAL LIGHT

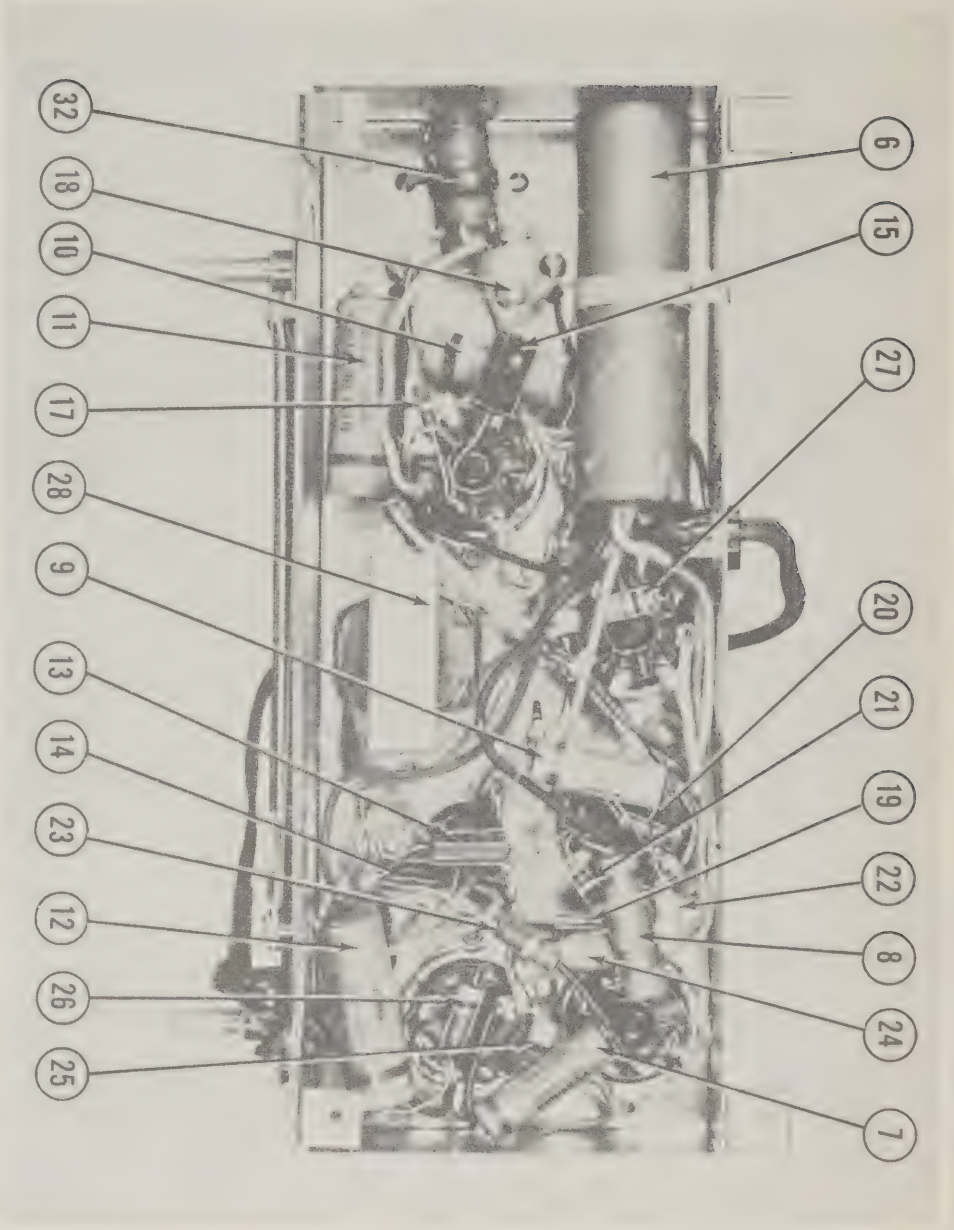
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					REMLER PART No.		
38	Bayonet	6-8	.15	Frosted			Type 47

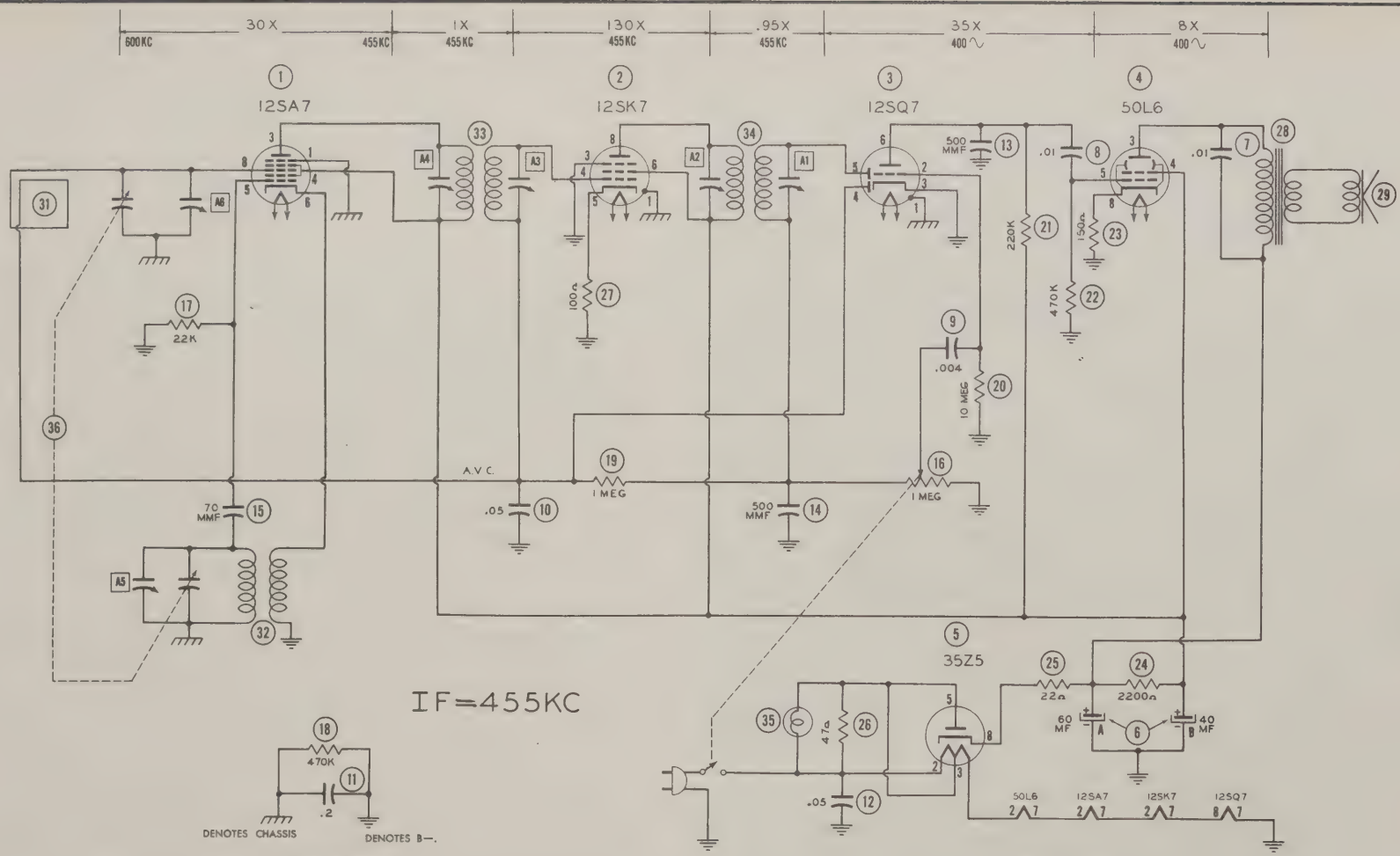
MISCELLANEOUS

ITEM No.	PART NAME	REMLER PART No.	NOTES
36	2 Gang Var. Cap.		31-472 MMF, 33-197 MMF



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	38VAC	83VDC	83VDC	-14VDC§	0V.	26VAC	-.4VDC
2	12SK7	0V.	26VAC	0V.	-.4VDC	1.1VDC	83VDC	12VAC	83VDC
3	12SQ7	0V.	-.6VDC	0V.	-.4VDC	-.4VDC	55VDC	0V.	12VAC
4	50L6GT	0V.	90VAC	117VDC	83VDC	0V.	0V.	38VAC	5.5VDC
5	35Z5GT	0V.	117VAC	114VAC	0V.	114VAC	124VDC	90VAC	125VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	450KΩ	38Ω	80KΩ	80KΩ	22KΩ	1Ω	26Ω	1.8 Meg.
2	12SK7	450KΩ	26Ω	0Ω	1.8 Meg.	100Ω	[illegible]KΩ	12Ω	[illegible]KΩ
3	12SQ7	450KΩ	10[illegible]	0Ω	1.8 Meg.	[illegible]KΩ	30[illegible]Ω	0Ω	12Ω
4	50L6GT	INF.	85Ω	80KΩ	80KΩ	440KΩ	INF.	38Ω	150Ω
5	35Z5GT	INF.	112Ω	110Ω	INF.	110Ω	80KΩ	85Ω	80KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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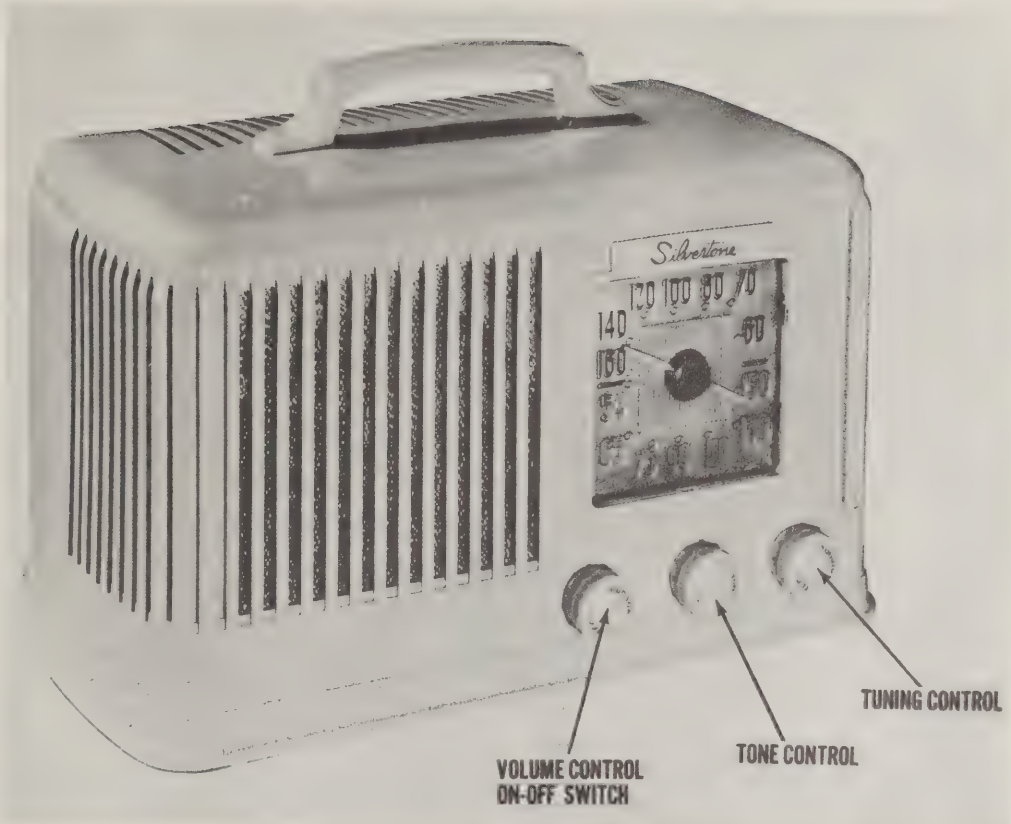
4717-23

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

SILVERTONE MODEL
6016 (Ch. 132.820)



SILVERTONE MODEL
6016 (Ch. 132.820)

SILVERTONE MODEL 6016

TRADE NAME	Silvertone, Model 6016 (Ch. 132.820)
MANUFACTURER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC RATING .320 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05 MFD.	High side to Pin 8 (grid) of 12SA7. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	50 MMFD.	High side to ext. ant. clip. (Shorting wire should be disconnected). Low side to B-.	1400KC	1400KC	"	A5	Adjust for maximum output.
3	50 MMFD.	"	"	Tune for maximum output.	"	A6,A7	" " " "

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DATE 10/47 SET #27 FOLDER #4717-24

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	N19239	FP354*	DY-4020-150	EL-24	AF88D	UP4215	■ Filter
B	20	150							▲ "
8	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
9	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	Hum Neutralization
10	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
11	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
12	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Ext. Ant. Isolation
14	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	Isolation
15	.05	400		TP426	MPH-6-05	TC-15	484-05	DT4S5	Line Filter
16	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Tone Compensation
17	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
18	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter
19	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.
20	14	500							RF Coupling Silver

*Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21A	500KΩ	½	N19448	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 21A per instructions
C	Switch.		" "	M26	41	SW-A	" " " " "
22A	500KΩ	½	N19966	MR48	D13-133	M-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 22A per instructions

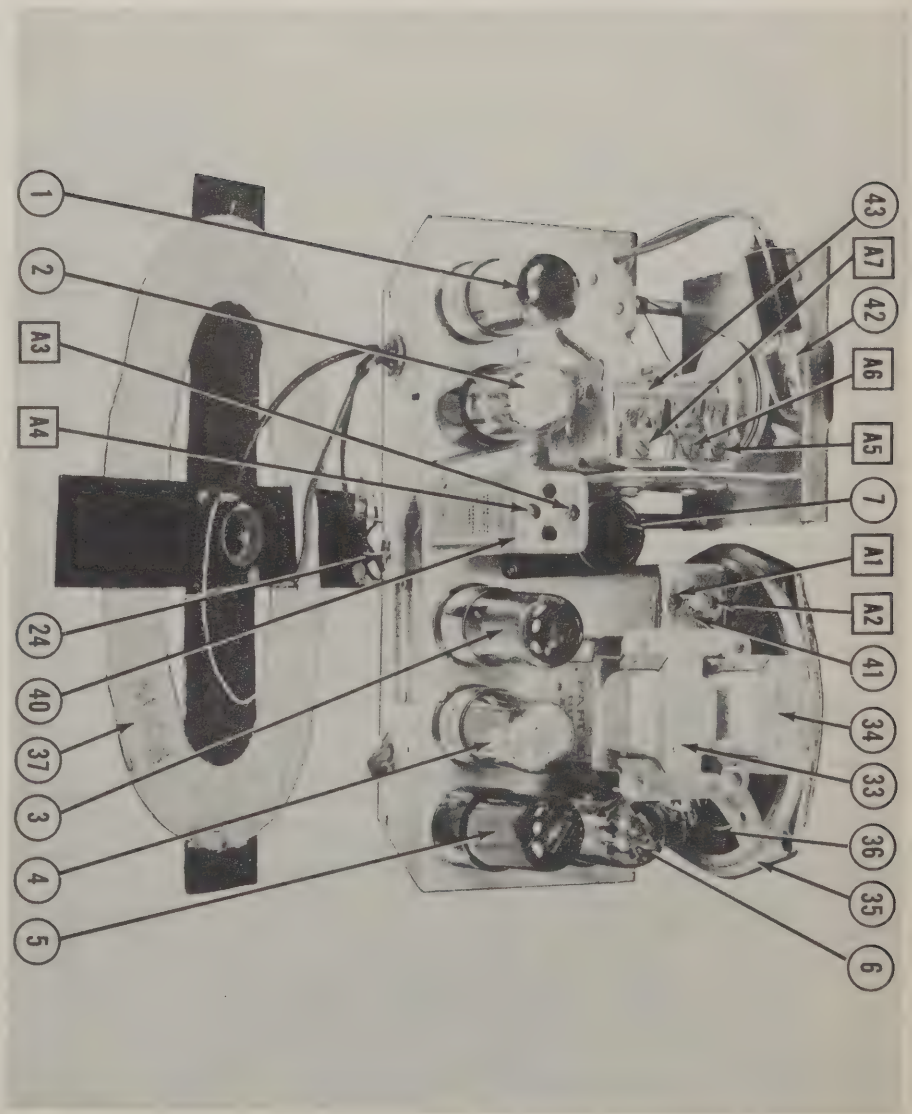
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
23	330KΩ	¼		BTS-330K	Or.-Or.-Yl. Line Isolation
24	10KΩ	¼		BTS-10K	Br.-Blk.-Or. Antenna Loading
25	6800Ω	¼		BTS-6800	Blue-Gray-Red Converter Grid
26	22KΩ	¼		BTS-22K	Red-Red-Or. Oscillator Grid
27	6.8 Meg.	¼		BTS-6.8 Meg.	Blue-Gray-Grn. AVC Network
28	2.2 Meg.	¼		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
29	6.8 Meg.	¼		BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
30	470KΩ	¼		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
31	12KΩ	1		BTA-12K	Br.-Red-Or. Bleeder
32	150Ω	¼		BW-½-150	Br.-Grn.-Br. Output Cathode
44	15Ω	¼		BW-½-15	Br.-Grn.-Blk. Surge Limiter

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000~)	REPLACEMENT DATA: SILVERTONE PART NO.	STANCOR PART NO.	THORDARSON PART NO.	MERIT PART No.	INSTALLATION NOTES
33	.041A	215Ω	8.5 Henries	N18583	C-1723	T20C52 §	C-2975	§ Cut bracket and spread to mount replacement.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
34	2050Ω	3.05Ω	110Ω	.38Ω	N18582	A-3876	T22S45	A-2928	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SILVERTONE PART No.	JENSEN PART No.		
35	FIELD PM	VC IMP. 3.05Ω	N18550	ST-107† Mod. P5-V		†Fabricate new mounting bracket.
36	CONE DIA. 5-5/32"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

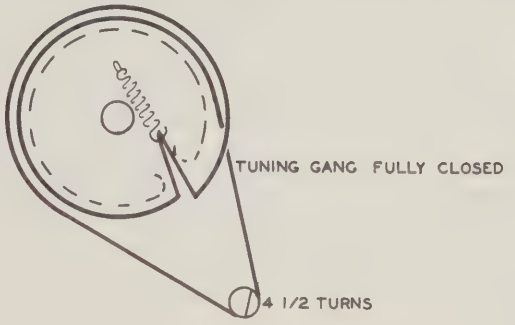
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.
37	Loop Ant.	12Ω	.8Ω	N19666	
38	RF Coil	4.5Ω	9.5Ω	N19860	
39	Osc. Coil	1Ω	10.5Ω	N18580	14-1040
40	Input IF	16.5Ω	16.5Ω	N21009	16-6666
41	Output IF	12.5Ω		N18578	16-6667

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SILVERTONE PART No.		
42	Screw	117					Type C7

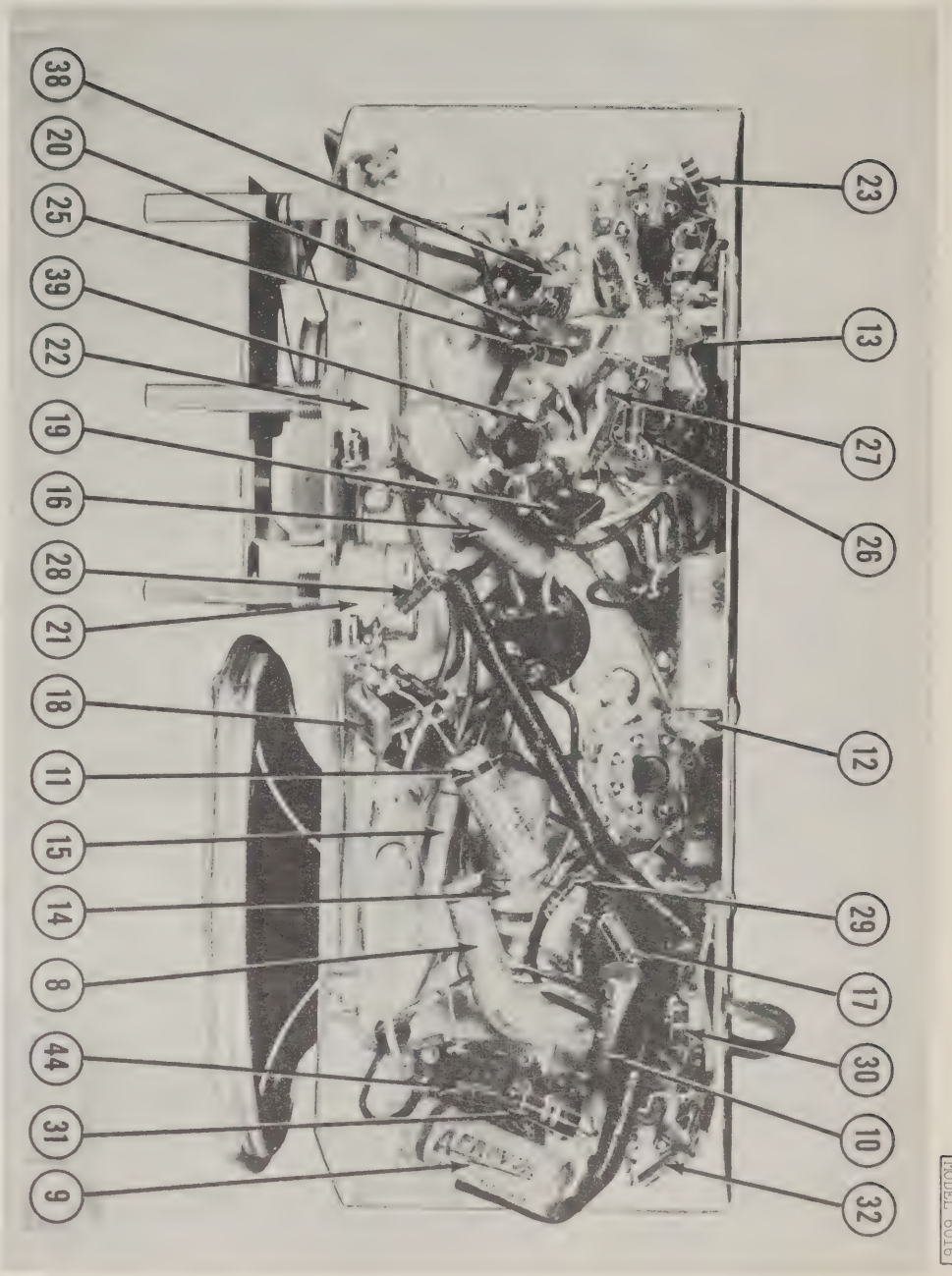
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
43	3 Gang Var. Cap.	N18564	38-514 MMF, 18-253 MMF, 13-92MMF
	Dial Scale	N19225	
	Dial Glass	N18272	
	Dial Pointer	N19226	



DIAL CORD DRIVE

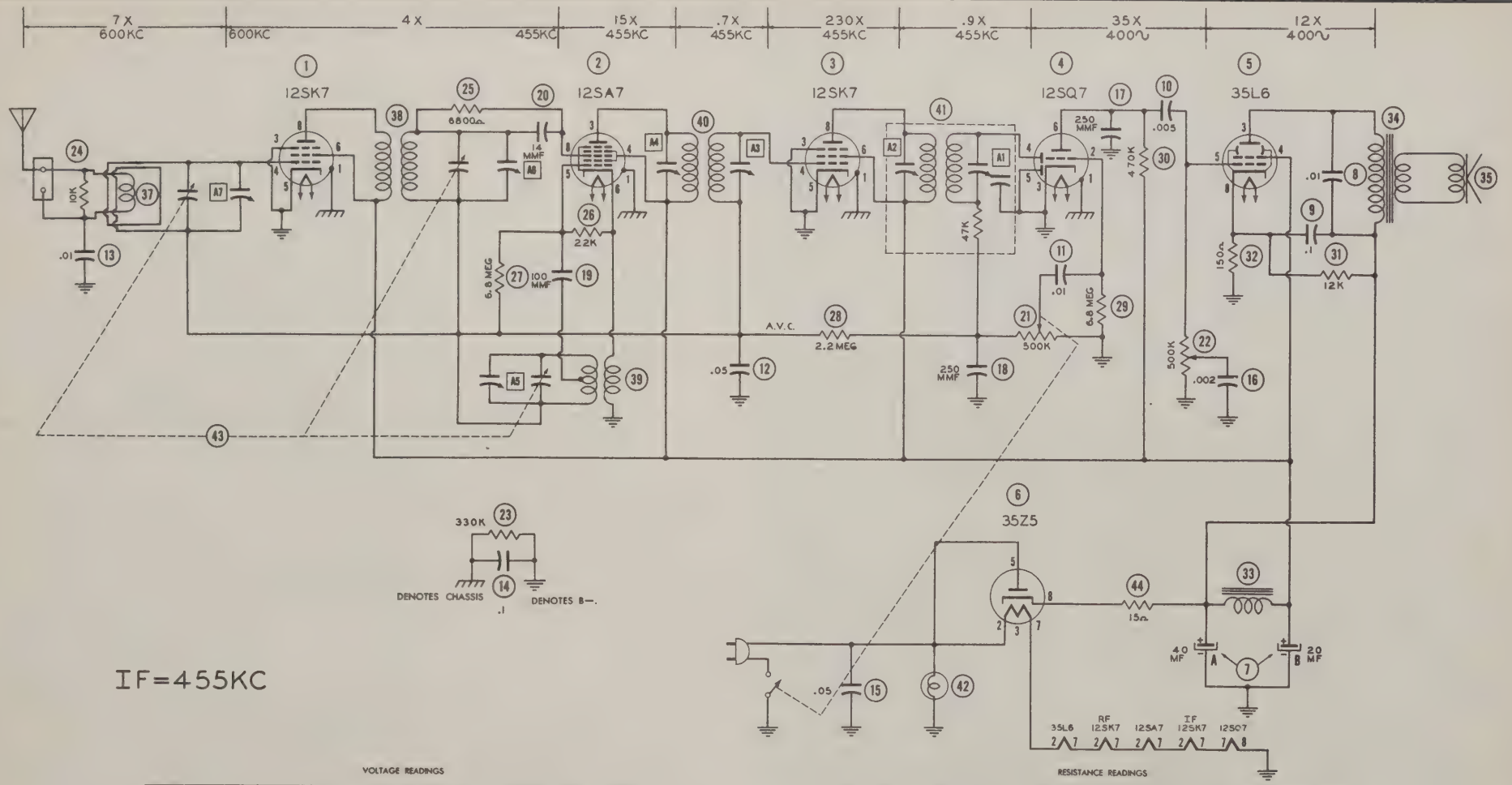
CHASSIS—BOTTOM VIEW



DATE 10/47 SET #27 FOLDER #4717-24

SILVERTONE MODEL 6016

SILVERTONE MODEL 6016



IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	50VAC	0V.	-1VDC	0V.	93VDC	37VAC	93VDC
2	12SA7GT	0V.	37VAC	93VDC	93VDC	-8.5VDC§	0V.	24VAC	-1VDC
3	12SK7GT	0V.	24VAC	0V.	-1VDC	0V.	93VDC	12VAC	93VDC
4	12SQ7GT	0V.	-.9VDC	0V.	-.4VDC	0V.	55VDC	12VAC	0V.
5	35L6GT	0V.	80VAC	108VDC	93VDC	0V.	0V.	50VAC	5.8VDC
6	35Z5GT	0V.	117VAC	108VAC	111VDC	117VAC	0V.	90VAC	112VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	330KΩ	44Ω	0Ω	2.7 Meg.	0Ω	12KΩ	34Ω	12KΩ
2	12SA7GT	330KΩ	34Ω	12KΩ	12KΩ	22KΩ	1Ω	24Ω	2.7 Meg.
3	12SK7GT	330KΩ	24Ω	0Ω	2.7 Meg.	0Ω	12KΩ	12Ω	12KΩ
4	12SQ7GT	330KΩ	7 Meg.	0Ω	550KΩ	0Ω	480KΩ	12Ω	0Ω
5	35L6GT	INF.	65Ω	12KΩ	12KΩ	500KΩ	0Ω	44Ω	150Ω
6	35Z5GT	INF.	80Ω	77Ω	12KΩ	80Ω	INF.	65Ω	12KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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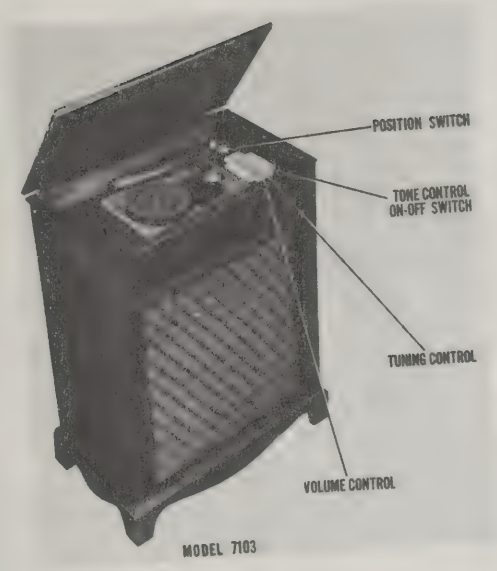
4717-24

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

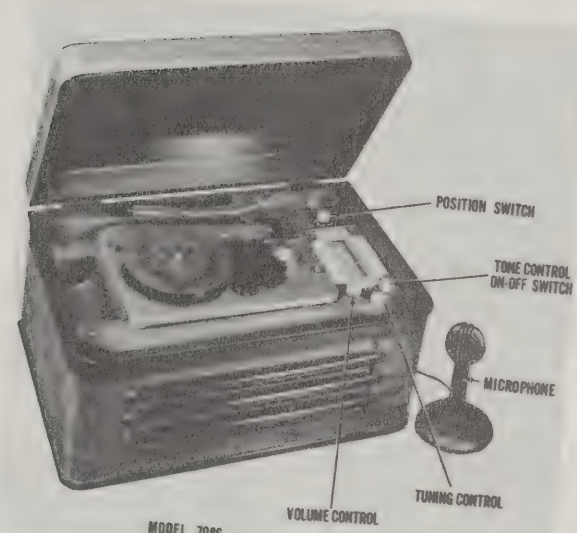
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE MODELS 7086 (Ch. 110.466) 7103 (Ch. 110.466-1)

SILVERTONE MODELS 7086 (Ch. 110.466), 7103 (Ch. 110.466-1)



MODEL 7103



MODEL 7086

SILVERTONE MODELS 7086 (Ch. 110.466), 7103 (Ch. 110.466-1)

TRADE NAME	Silvertone, Models 7086 (Ch. 110.466), 7103 (Ch. 110.466-1)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne with Wire Recorder (Similar to Model 771 - See Photofact Folder #4716-32 Set. No. 26).
TUBES(SEVEN)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 12SJ7GT Pre.-Amp., 50L6GT Bias Osc., 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	535-1600KC RATING .400 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MASTER SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 8 (grid) 12SA7. Low side to B-.	455KC	"Play Radio" (2nd position clock-wise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Place generator lead near loop with no direct connection.	1500KC	"	1500KC	"	A5	Adjust for maximum output.
3		"	"	"	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	6AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Pre.-Amp.	12SJ7GT	12SJ7GT	8N	
6	Bias Osc.	50L6GT	50L6GT	7AC	
7	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

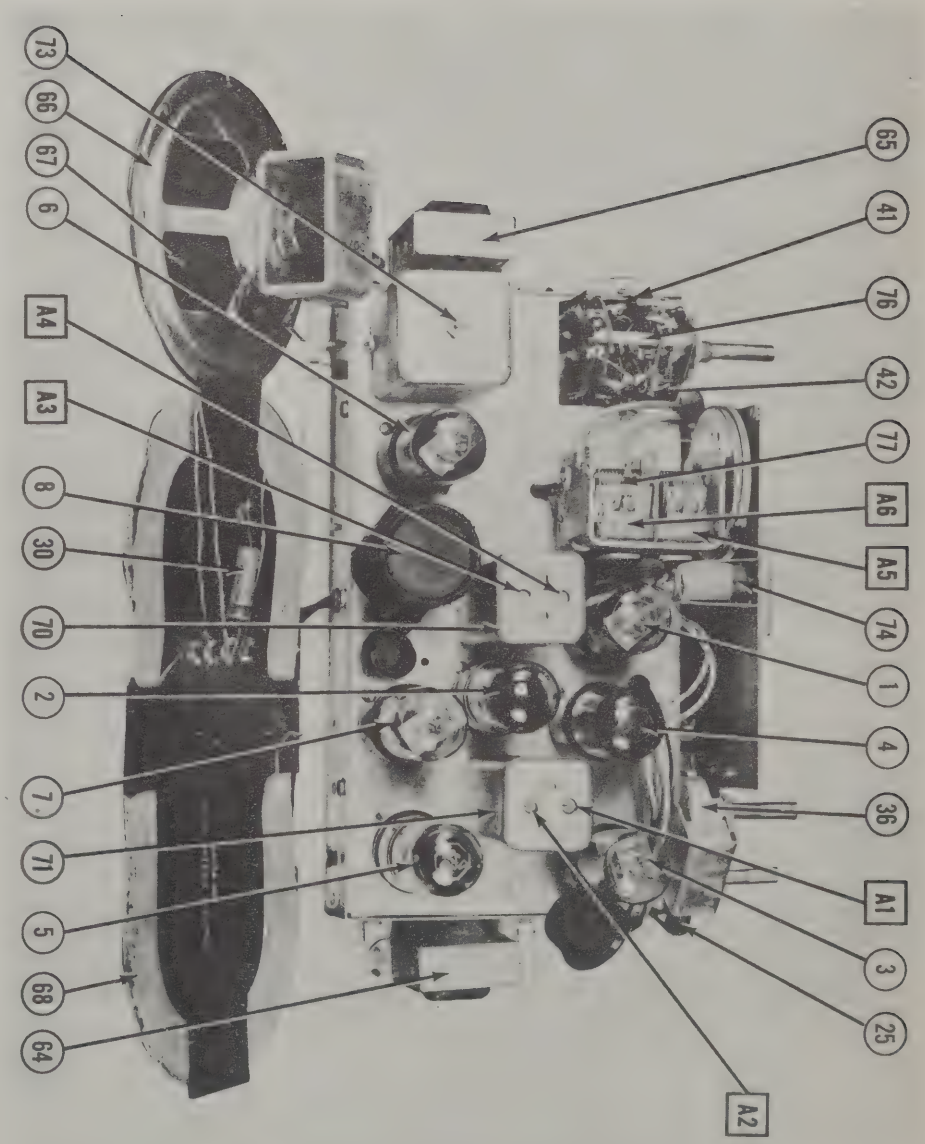
ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
8A	40	150	A2074	FP409	DY-419	EL-443	AF886D4A	UP44315C	■ Filter
B	40	150							● "
C	40	150							▲ "
D	25	25							Cathode Bypass
9	25	10		TC26	M-25-25	TA-25	PRS25-25	BR252A	" " " §
10	.02	600		TP412	S-6-02	TC-12	684-02	DT6S2	Bias Osc. Feedback
11	.01	400		TP401	S-4-01	TC-11	484-01	DT4S1	" " "
12	.2	400		TP429	S-4-2	TC-2	484-.2	DT4P2	Bias Osc. Cathode Bypass
13	.2	400		TP429	S-4-2	TC-2	484-.2	DT4P2	Bias. Osc. RF Bypass
14	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	Pre-Amp. Screen Bypass
15	.02	400	A1982	TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
16	.25	400	A1983	TP430	S-4-25	TC-2	484-.25	DT4P25	" "
17	.01	600	A1981	TP410	S-6-01	TC-11	684-01	DT6S1	Recording Coupling
18	.01	600	A1981	TP410	S-6-01	TC-11	684-01	DT6S1	Indicator Coupling
19	.001	150	A1980	TP404	S-6-001	TC-21	684-001	DT6D1	Tone Compensation
20	.005	400		TP408	S-6-005	TC-25	684-005	DT6D5	" " ‡
21	.05	400		TP426	S-4-05	TC-05	484-05	DT4S5	Phono Recorder Isol.
22	.001	400		TP404	S-6-001	TC-21	484-001	DT6D1	Output Plate Bypass
23	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
24	.005	400	A1978	TP408	S-6-005	TC-25	684-005	DT6D5	Tone Comp.
25	.005	400	A1978	TP408	S-6-005	TC-25	484-005	DT6D5	Audio Coupling
26	.25	400		TP430	S-4-25	TC-2	484-.25	DT4P25	RF Bypass
27	.08	600		TP428	S-4-1	TC-1	684-075	DT6P1	Mic. Isolation
28	.15	600		TP417	S-4-2	TC-1	684-.15	DT6P2	Line Isolation
29	.1	150	A1979	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
30	.001	400		TP404	S-6-001	TC-21	484-001	DT6D1	Ext. Ant. Isolation
31	.002	150		TP405	S-6-002	TC-22	484-002	DT6D2	Tone Compensation
32	.05	400		TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
33	47	500		MC225	MO.5-45	1FM-45	1468-0005	5W5Q5	AF Plate Bypass
34	330	500		MC241	MO.5-33	1FM-33	1468-0003	5W5T3	Diode RF Filter
35	18								Fixed Trimmer

§Not used in later production.
‡Not used in all models.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
36A	500KΩ	½	A2475	MR48	D13-133	M-6C-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 36A per instructions
37A	500KΩ	½	A2474	MR48	D13-133	M-6C-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 37A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	
38	22KΩ	¼		BTS-22K	Red-Red-Or. Oscillator Grid
39	270KΩ	¼		BTS-270K	Red-Vl.-Yl. Line Isolation
40	2.2 Meg.	¼		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
41	100KΩ	¼		BTS-100K	Br.-Blk.-Yl. Phono Shunt
42	470KΩ	¼		BTS-470K	Yl.-Vl.-Yl. Series Phono
43	4.7 Meg.	¼		BTS-4.7 Meg.	Yl.-Vl.-Grn. AF Grid
44	330KΩ	¼		BTS-330K	Or.-Or.-Yl. AF Plate Load
45	470KΩ	¼		BTS-470K	Yl.-Vl.-Yl. Output Grid
46	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
47	18Ω	2		BW-2-18	Br.-Gray-Blk. Rectifier Ballast
48	47KΩ	¼		BTS-47K	Yl.-Vl.-Or. Filter
49	3.3Ω	½		BW-½-3.3	Or.-Or.-Gold Voice Coil Shunt
50	270KΩ	¼		BTS-270K	Red-Vl.-Yl. Voltage Dropping
51	220KΩ	¼		BTS-220K	Red-Red-Yl. Voltage Dropping
52	82KΩ	¼		BTS-82K	Gray-Red-Or. Tone Compensation
53	4700Ω	¼		BTS-4700	Yl.-Vl.-Red " "
54	2200Ω	¼		BTS-2200	Red-Red-Red Pre-Amp. Cathode-See Note 1
55	2.2 Meg.	¼		BTS-2.2 Meg.	Red-Red-Grn. Pre-Amp. Grid - See Note 5
56	330KΩ	¼		BTS-330K	Or.-Or.-Yl. Pre-Amp. Plate Load
57	1 Meg.	¼		BTS-1 Meg.	Br.-Blk.-Grn. Pre-Amp. Screen Dropping
58	22KΩ	¼		BTS-22K	Red-Red-Or. Bias Oscillator Grid
59	330Ω	¼		BW-½-330	Or.-Or.-Br. Parasitic Suppressor
60A	180Ω			ABA-200	Line Dropping - See Note 3
B	135Ω			ABA-150	" " - See Note 4
61	110Ω	2		BW-2-120	Br.-Br.-Br. Pilot Light Shunt
62	2.4Ω	½			Series Voice Coil - See Note 2
63	1Ω	½			Voice Coil Shunt - See Note 2

Note 1 - Not used in later production.
Note 2 - Used in later production only.
Note 3 - On IRC replacement set slider at 180Ω from one end.
Note 4 - On IRC replacement set slider at 135Ω from one end.
Note 5 - Early production uses 470KΩ. IRC replacement BTS-470K.

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	SILVERTONE PART NO.	STANCOR PART NO.	THORDARSON PART NO.	MERIT PART No.	
64	.075A	250Ω	4 Henries	A1400	C-1355†			†Drill new mounting holes.

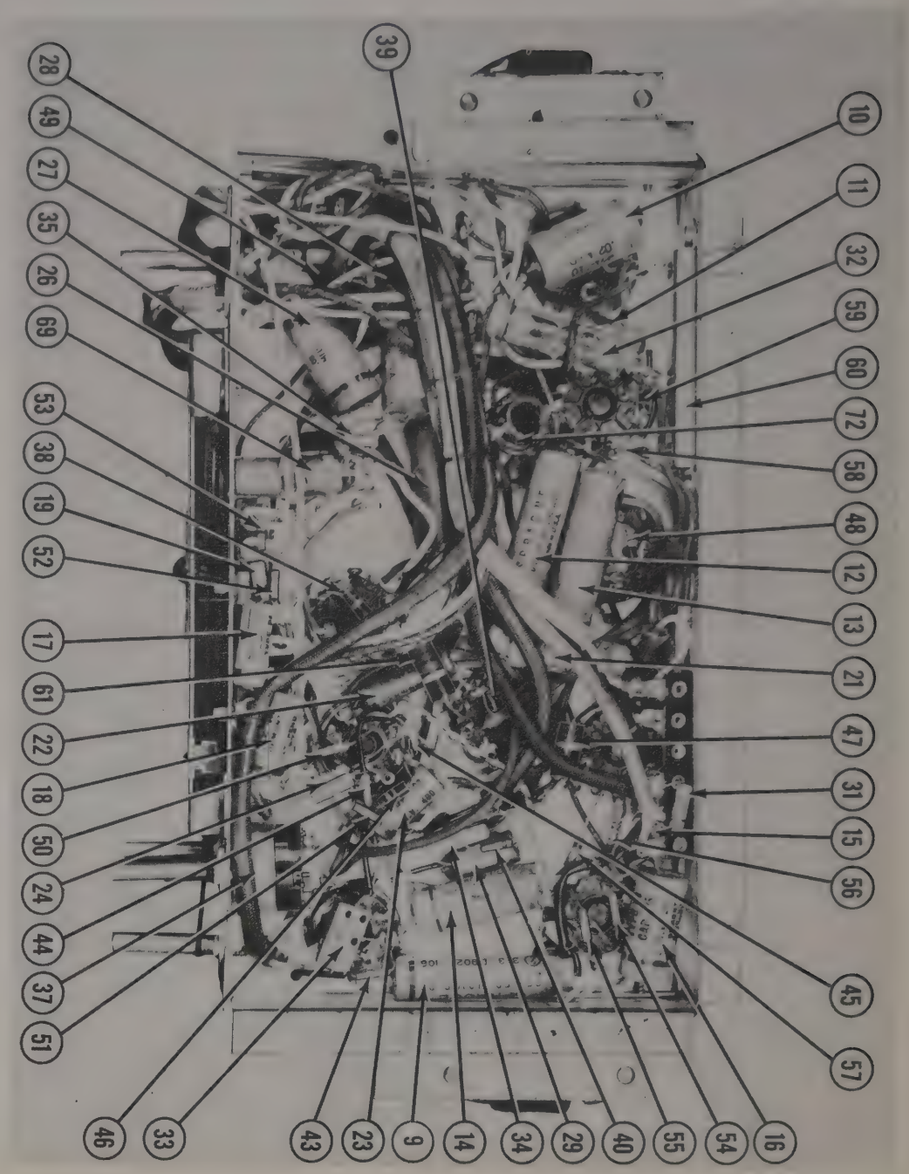
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
65	2500Ω	3.2Ω	230Ω	.7Ω	A1336	A-3876	T22S45	A-2928	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	SILVERTONE PART No.	JENSEN PART No.		
66A	PM	3.2Ω	A5874	ST-107 Mod. P5-V		
B	PM	3.8Ω	A5875	ST-117 Mod. P8-T		
	CONE DIA.	VC DIA.				
67A	4½"	½"				
B	7-7/8"	15/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
68	Loop Ant.	.1Ω	1.2Ω	A28174		
69	Osc. Coil	.8Ω	1.2Ω	A28173	14-1040	Add 50 MMFD from grid to high side of tuning cap.
70	Input IF	20Ω	21Ω	A3360	16-6658	
71	Output IF	18Ω	18Ω	A3530	16-6660	
72	RF Choke		17Ω	A3010		
73	Bias Osc. Coil	.1Ω	3Ω	A28178		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SILVERTONE PART No.		
74	Bayonet	6-8	0.15	Brown			Type 47

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	SILVERTONE PART No.	ASTATIC PART No.	
75		L-71-A	

MISCELLANEOUS

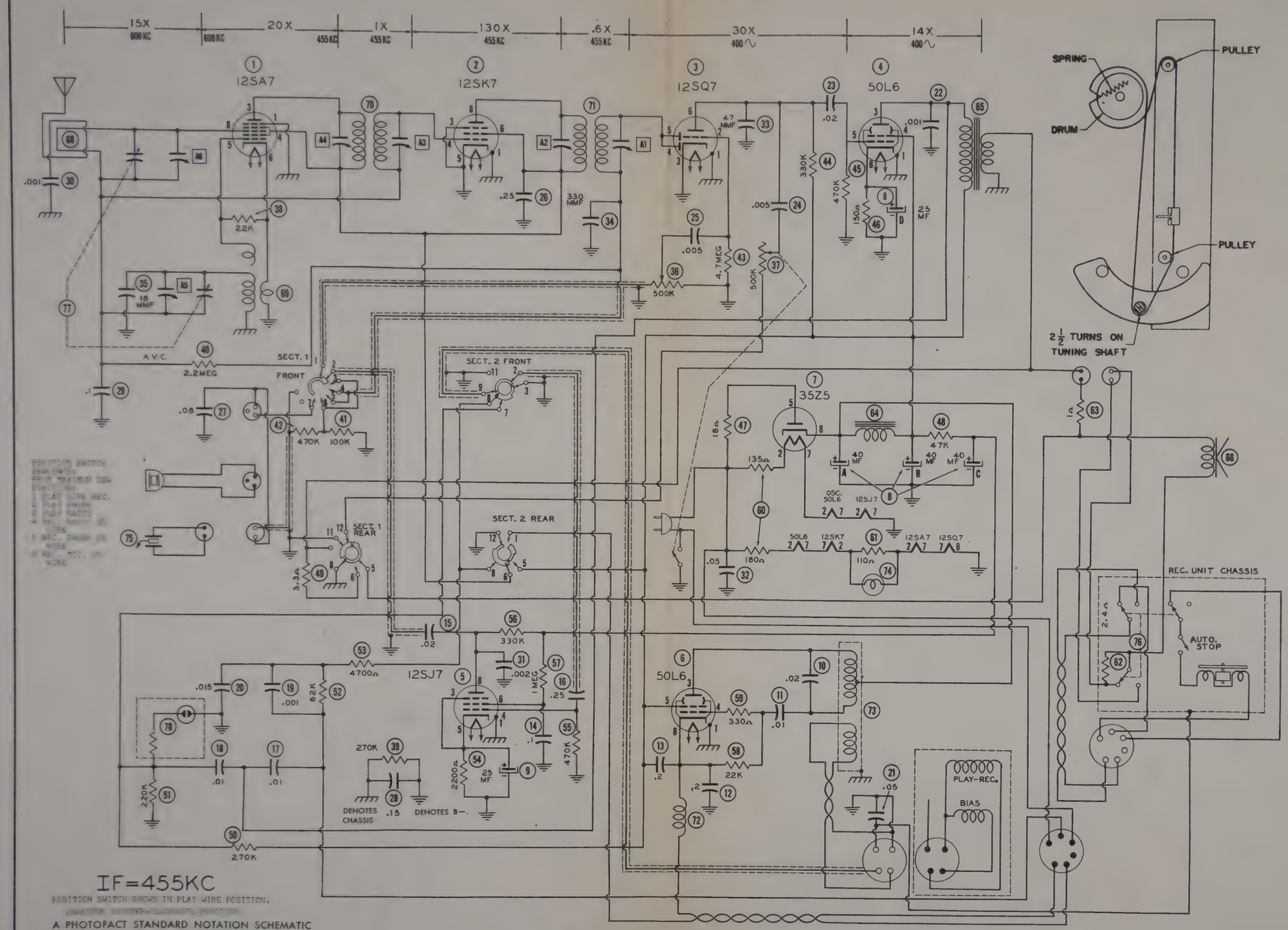
ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
76	Selector Switch	A3789	6 Position
77	2 Gang Var. Cap.	A1693	37-480 MMF, 21-198 MMF
78	Neon Bulb	A-18133	Socket Assembly
	Dial Scale	A40116	
	Dial Pointer	A4142	

DISASSEMBLY INSTRUCTIONS FOR MODEL 7086

1. Remove four push-on type control knobs.
2. Remove twelve Phillips head screws holding panel board on back of cabinet.
3. Remove one wood screw holding loop antenna in cabinet.
4. Remove phono-pickup plug from chassis.
5. Remove speaker plugs from speaker.
6. Remove plug from recording head. Unsolder black ground lead from recorder.
7. Disconnect plug going to recorder switch.
8. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
9. Remove two wood screws holding speaker in cabinet. Remove speaker from cabinet.

DISASSEMBLY INSTRUCTIONS FOR MODEL 7103

1. Remove four push-on type control knobs.
2. Remove microphone plug from chassis.
3. Remove phono-pickup plug from chassis.
4. Disconnect two plugs going to recorder switch.
5. Disconnect plug from recording head. Unsolder black ground lead from recorder.
6. Remove speaker plugs from speaker.
7. Remove two screws holding loop antenna in cabinet.
8. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
9. Remove four wood screws holding speaker in cabinet. Remove speaker from cabinet.



VOLTAGE AND RESISTANCE READINGS
TAKEN IN PLAY RADIO POSITION.

Pin	12SA7GT		12SK7GT	
No.	Volt.	Res.	Volt.	Res.
1	0V.	270KΩ	0V.	270KΩ
2	24VAC	24Ω	28VAC	27Ω
3	93VDC	60KΩ	0V.	0Ω
4	93VDC	60KΩ	-.4VDC	2.7 Meg.
5	-7.3VDC§	22KΩ	0V.	0Ω
6	0V.	.8Ω	93VDC	60KΩ
7	12VAC	12Ω	40VAC	38Ω
8	-.4VDC	2.7 Meg.	93VDC	60KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

Pin	12SQ7GT		50L6GT	
No.	Volt.	Res.	Volt.	Res.
1	0V.	270KΩ	0V.	270KΩ
2	-.4VDC	5 Meg.	88VAC	75Ω
3	0V.	0Ω	83VDC	60KΩ
4	-.5VDC	500KΩ	93VDC	60KΩ
5	-.5VDC	500KΩ	0V.	500KΩ
6	62VDC	390KΩ	0V.	0Ω
7	12VAC	12Ω	40VAC	38Ω
8	0V.	0Ω	5.5VDC	150Ω

♦ TAKEN WITH LOW SIDE OF BIAS OSC. CATHODE CHOKE CONNECTED TO B-.

Pin	12SJ7GT		♦ 50L6GT	
No.	Volt.	Res.	Volt.	Res.
1	0V.	270KΩ	0V.	270KΩ
2	12VAC	12Ω	62VAC	56Ω
3	.6VDC	2.2KΩ	113VDC	60KΩ
4	-.2VDC	500KΩ	93VDC	60KΩ
5	.6VDC	2.2KΩ	-24VDC	22KΩ
6	15VDC	1.1 Meg.	-24VDC	22KΩ
7	0V.	0Ω	12VAC	12Ω
8	8VDC	440KΩ	.6VDC	17Ω

Pin	3525GT	
No.	Volt.	Res.
1	0V.	INF.
2	97VAC	80Ω
3	88VAC	75Ω
4	77VDC	60KΩ
5	115VAC	140Ω
6	117VAC	125Ω
7	62VAC	56Ω
8	113VDC	60KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

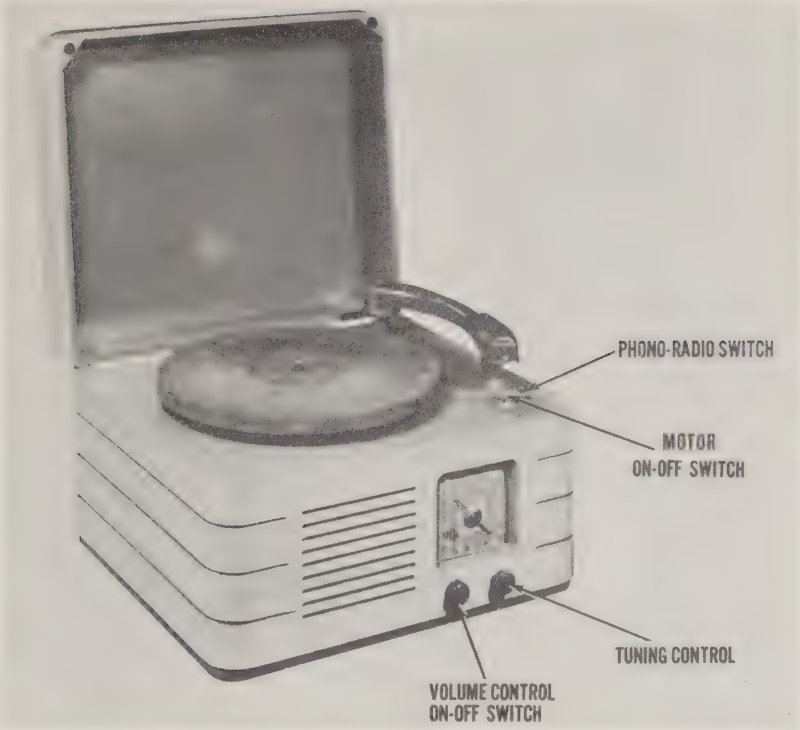
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4717-25

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SONORA MODELS
RGMF-212, RGMF-230



SONORA MODEL RGMF-230

TRADE NAME	Sonora, Model RGMF-212, RGMF-230
MANUFACTURER	Sonora Radio & Television Corp., 325 N. Hoyne Ave., Chicago, Ill.
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	535-1620KC RATING .220 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a .1 MFD. capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 7 (grid) 12BE6. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD..to reduce hum modulation.
2	100 MMFD	High side to ext. ant. lead. Low side to chassis.	1620KC	"	"	A4	Adjust for maximum output.
3	100 MMFD	"	1400KC	Tune for maximum output.	"	A5	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove two push-on type control knobs.
2. Remove lock nut holding phono motor switch in cabinet.
3. Remove lock nut holding phono-radio switch in cabinet.
4. Remove three hex head screws holding chassis in cabinet.
5. Remove three hex head screws holding phono in cabinet. Lift up phono motor board and slide chassis out rear of cabinet.
6. Unsolder phono pickup leads from radio-phono switch.
7. Unsolder phono-motor leads.

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DATE 10/47 SET #27 FOLDER #4717-26

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SONORA PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SONORA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	40	150	N-4986	2N511	DSB-2x40-150	TA-440	PRSA-150-40-40	E25515	Filter - Red
B	40	150							Blue
7	.02	400	N-1376	TP423	S-4-02	TC-12	464-02	DT4S2	Output Plate Bypass
8	.01	400	N-1344	TP421	S-4-01	TC-11	464-01	DT4S1	Audio Coupling
9	.005	600	N-4894	TP408	S-6-005	TC-25	664-005	DT6D5	" "
10	.05	200	N-1345	TP426	S-4-05	TC-15	464-05	DT4S5	AVC Filter
11	.05	200	N-1345	TP426	S-4-05	TC-15	464-05	DT4S5	Isolation
12	.05	400	N-1346	TP426	MPH-6-05	TC-15	464-05	DT4S5	Line Filter
13	.05	200	N-1345	TP426	S-4-05	TC-15	464-05	DT4S5	Phono Isolation
14	250	500		MC240	MC.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
15	100	500	N-1374	MC235	MC.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SONORA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500KΩ	½	N-4943	MK401	D13-133	AM-80-2	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 16A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

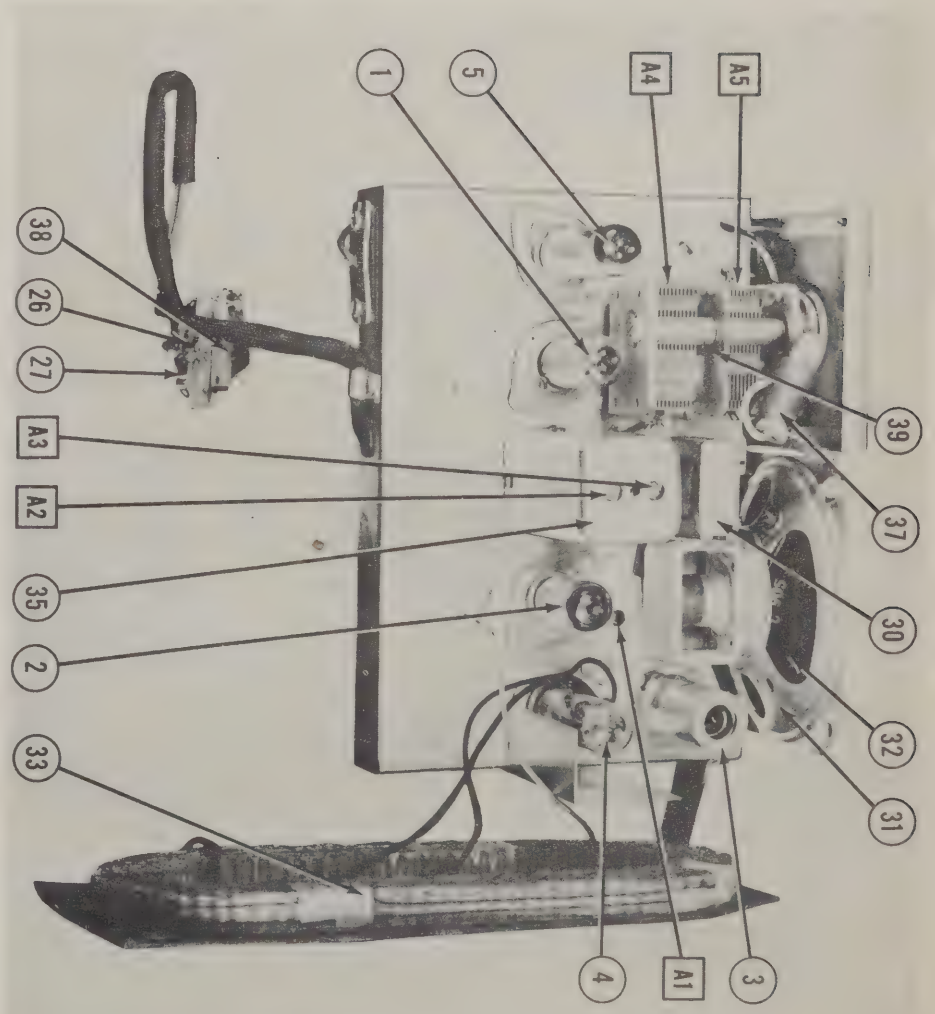
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SONORA PART No.	IRC PART No.	
17	22KΩ	½	N-4025	BTS-22K	Red-Red-Or. Oscillator Grid
18	220KΩ	½	N-4026	BTS-220K	Red-Red-Yl. Line Isolation
19	1 Meg.	½	N-1262	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
20	150Ω	½	N-3663	BW-½-150	Br.-Grn.-Br. IF Cathode
21	47KΩ	½	N-4087	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
22	6.8 Meg.	½	N-4028	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
23	220KΩ	½	N-4026	BTS-220K	Red-Red-Yl. AF Plate Load
24	220Ω	½	N-4024	BW-½-220	Red-Red-Br. Output Cathode
25	470KΩ	½	N-4027	BTS-470K	Yl.-Vi.-Yl. Output Grid
26	220KΩ	½	N-4988	BTS-220K	Red-Red-Yl. Phono Shunt
27	470KΩ	½	N-5405	BTS-470K	Yl.-Vi.-Yl. Series Phono
28	1000Ω	1	N-5359	BTA-1000	Br.-Blk.-Red Filter
29	33Ω	½	N-5403	BW-½-33	Or.-Or.-Blk. Surge Limiter

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SONORA PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
30	3500Ω	2.8Ω	255Ω	.6Ω	Part of N-2928	A-3876*	T22S46*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SONORA PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-113		
31	PM	2.8Ω	N-2928	Mod. P4-X		
	CONE DIA.	VC DIA.				
32	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

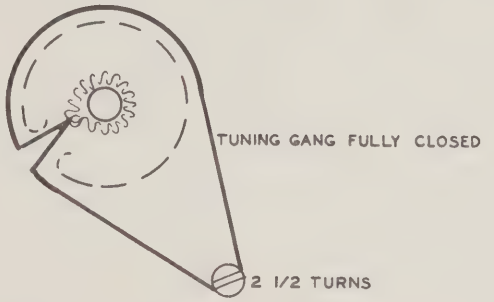
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SONORA PART No.	MEISSNER PART No.	
33	Loop Ant.	.1Ω	2Ω	N-4936		
34	Osc. Coil	.8Ω	6Ω	N-4810	14-1040	Add 50 MMFD from grid to high side tuning cap.
35	Input IF	21Ω	20Ω	N-4813	16-6658	
36	Output IF	29Ω	29Ω	N-4846		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SONORA PART No.		
37	Bayonet	6-8	.15	Brown	N-3372		Type 47

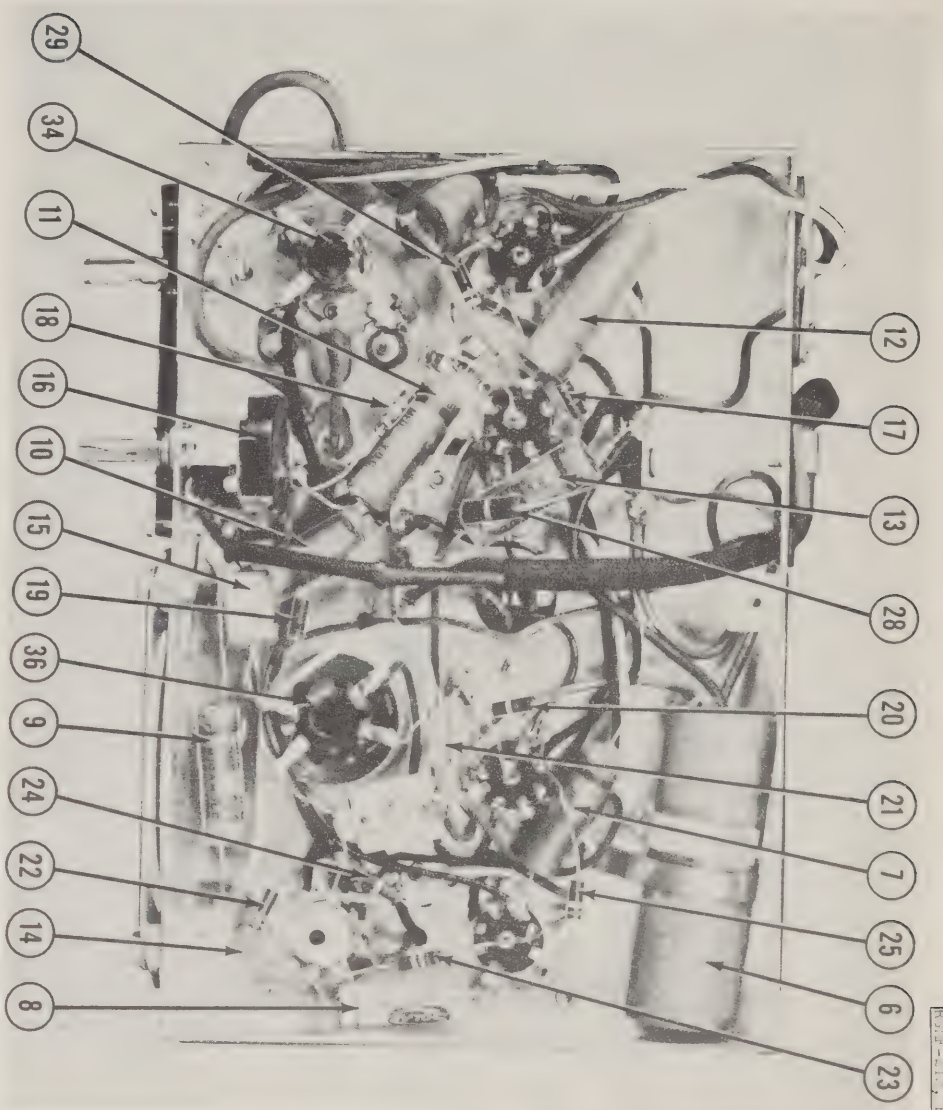
MISCELLANEOUS

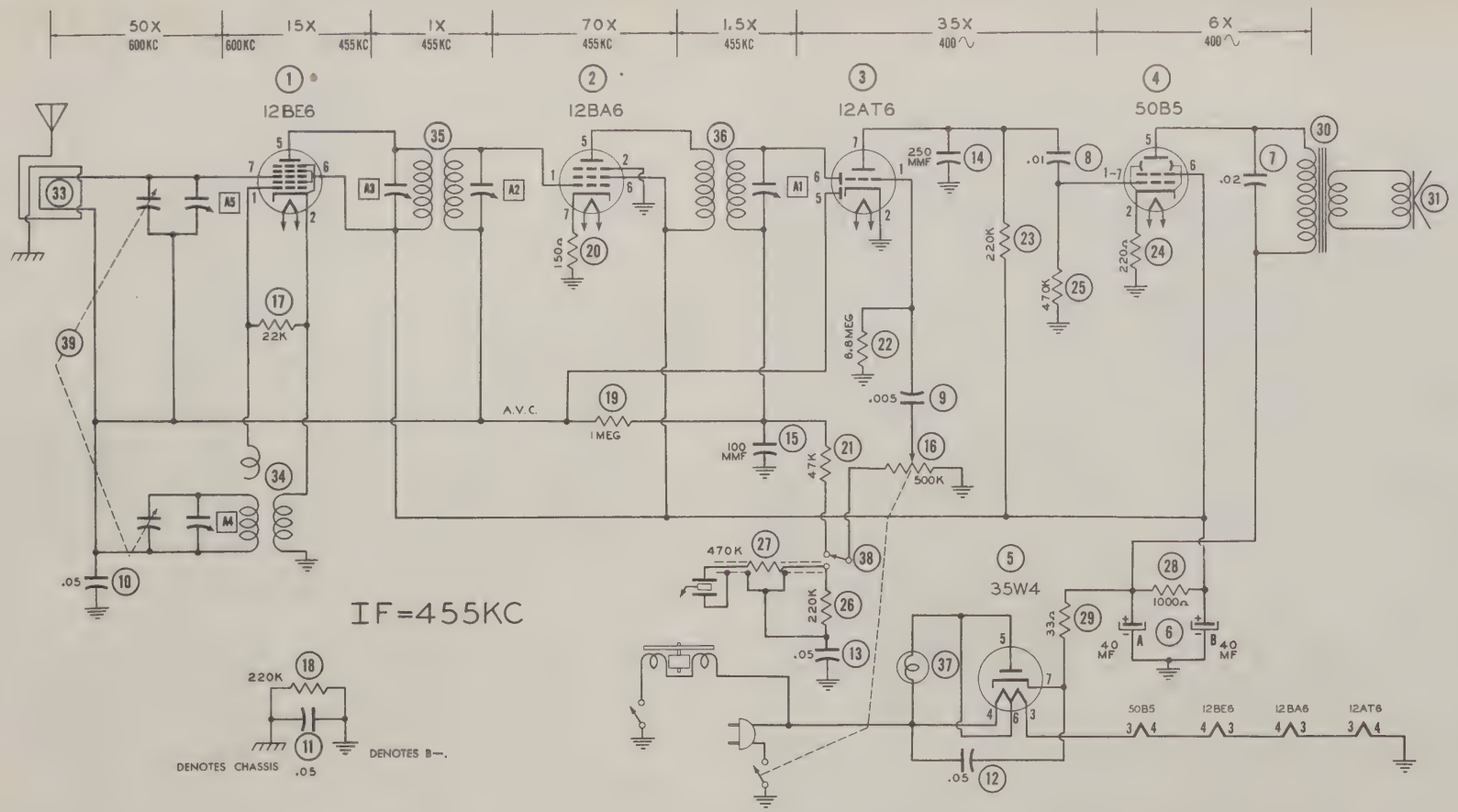
ITEM No.	PART NAME	SONORA PART No.	NOTES
38	Switch	N-2409	Radio-Phono
39	2 Gang Var. Cap	N-4972	27-405 MMF, 36-197 MMF
	Motor Switch	N-3140	
	Phono Pickup	N-4967	
	Dial Glass	N-3166	
	Dial Scale	N-4051	
	Dial Pointer	N-4993	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-14VDC§	0V.	24VAC	37VAC	95VDC	95VDC	-.4VDC
2	12BA6	-.4VDC	0V.	12VAC	24VAC	95VDC	95VDC	1.2VDC
3	12AT6	-.7VDC	0V.	12VAC	0V.	-.4VDC	-.4VDC	50VDC
4	50B5	0V.	7.6VDC	85VAC	37VAC	105VDC	95VDC	0V.
5	35W4	112VDC	117VAC	86VAC	117VAC	112VAC	112VAC	115VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	22KΩ	1Ω	24Ω	36Ω	90KΩ	90KΩ	1.5 Meg.
2	12BA6	1.5 Meg.	0Ω	12Ω	24Ω	90KΩ	90KΩ	[illegible]
3	12AT6	7 Meg.	0Ω	12Ω	0Ω	1.5 Meg.	500KΩ	[illegible]
4	50B5	500KΩ	220Ω	90Ω	36Ω	90KΩ	90KΩ	[illegible]
5	35W4	90KΩ	120Ω	90Ω	120Ω	115Ω	115Ω	[illegible]

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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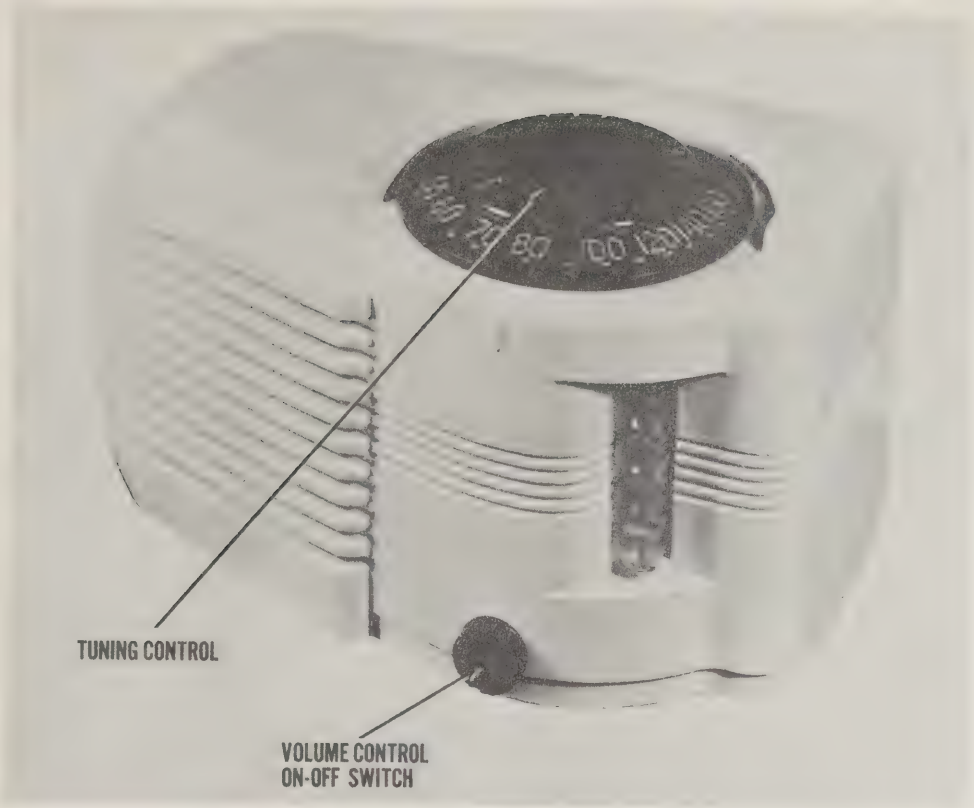
4717-26

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



SONORA MODEL
WAU-243

SONORA MODEL
WAU-243

SONORA MODEL WAU-243

TRADE NAME	Sonora, Model WAU-243
MANUFACTURER	Sonora Radio & Television Corp., 325 N. Hoyne Ave., Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna & Pushbutton Tuning
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	535-1720KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 8 (grid) 12SA7. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	100 MMFD	High side to ext. ant. lead. Low side to B-.	1720KC	"	"	A4	Adjust for maximum deflection.
3	100 MMFD	"	1400KC	Tune for maximum output.	"	A5	" " " "

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DATE 10/47 SET #27 FOLDER #4717-27

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SONORA PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	6R	
2	IF Amp.	12SK7	12SK7	6N	
3	Det.-AVC-AF	12SQ7	12SQ7	6Q	
4	Power Output	35L6GT	35L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SONORA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	40	150	N-5051	2N511	DSB-2x40-150	TA-440	PRSA150-40-40	BRD4415	Filter-Red
B	40	150							" -Blue
7	.05	400	N-1346	TP426	S-4-05	TC-15	484-05	DT4S5	Rect. Bypass
8	.02	400	N-1376	TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
9	.01	400	N-1344	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.1	200	N-1351	TP428	S-4-1	TC-1	484-.1	DT4P1	AF Plate Decoup.
11	.005	600	N-4894	TP409	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
12	.05	200	N-1345	TP426	S-4-05	TC-15	484-05	DT4S5	Line Isolation
13	.05	200	N-1345	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	.05	200	N-1345	TP426	S-4-05	TC-15	484-05	DT4S5	Tuning Gang Isol.
15	250	500	N-6135	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
16	100	500	N-6015	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter

CONTROLS

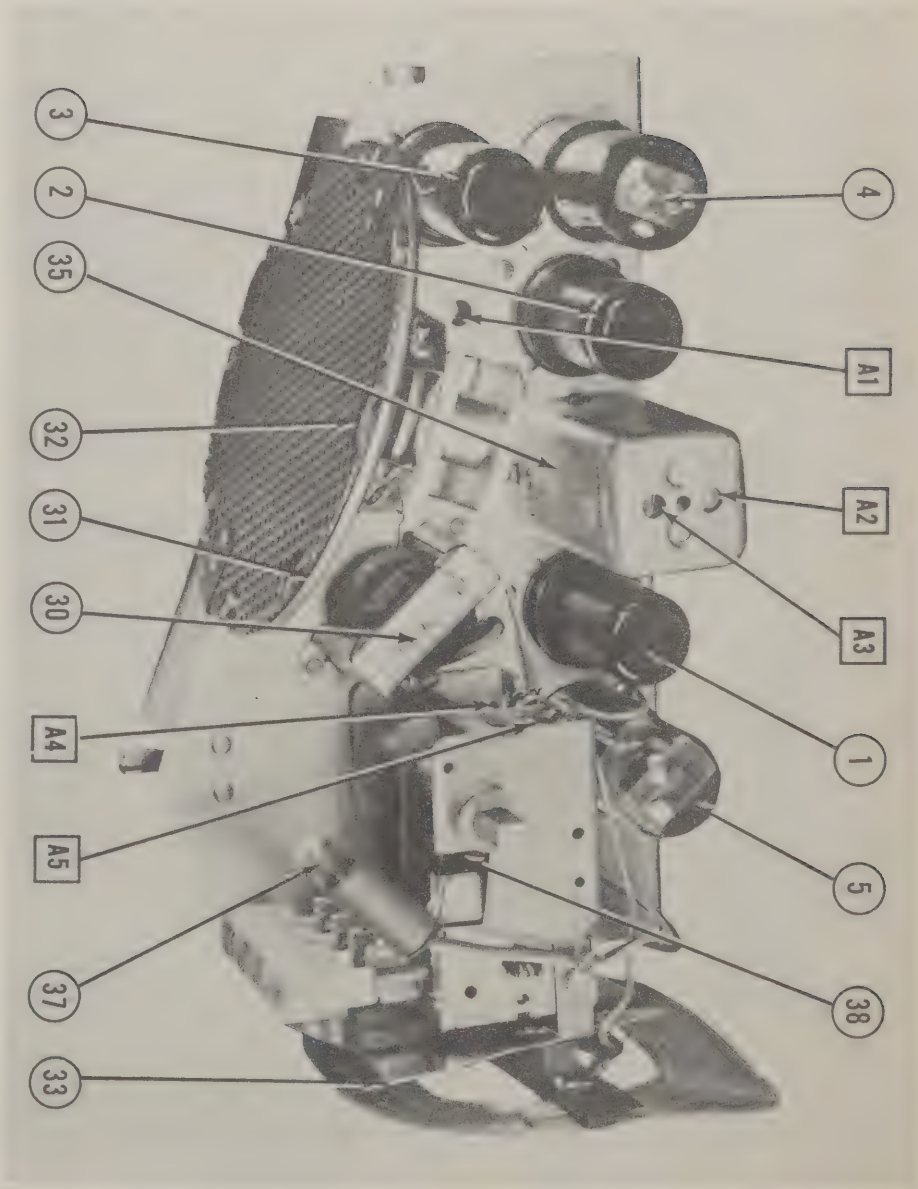
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SONORA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	500KΩ	½	N-2087	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SONORA PART No.	IRC PART No.	
18	15KΩ	½		BTS-15K	Br.-Grn.-Or. Oscillator Grid-See Note
19	220KΩ	½	N-4026	BTS-220K	Red-Red-Yl. Line Isolation
20	1 Meg.	½	N-1262	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
21	47KΩ	½	N-4063	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
22	6.8 Meg.	½	N-4028	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
23	220KΩ	½	N-4026	BTS-220K	Red-Red-Yl. AF Plate Load
24	56KΩ	½	N-4823	BTS-56K	Grn.-Blue-Or. AF Plate Decoupling
25	470KΩ	½	N-4027	BTS-470K	Yl.-Vi.-Yl. Output Grid
26	180Ω	½	N-4067	BW-½-180	Br.-Gray-Br. Output Cathode
27	1000Ω	1	N-5356	BTA-1000	Br.-Blk.-Red Filter
28	33Ω	½	N-4032	BW-½-33	Or.-Or.-Blk. Surge Limiter
29	82Ω	2	N-4033	BW-2-82	Gray-Red-Blk. Line Dropping

Note-Some models use 22KΩ in this application. IRC replacement BTS-22K.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SONORA PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
30	2500Ω	3.9Ω	160Ω tapped @ 6Ω	.6Ω	N-6191	A-3876*		A-2928*	*Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SONORA PART No.	JENSEN PART No.		
31	FIELD PM	VC IMP. 3.9Ω	N-6187	ST-107 Mod. P5-V		
32	CONE DIA. 4-3/4"	VC DIA 1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SONORA PART No.	MEISSNER PART No.	
33	Loop Ant.	.1Ω	1.5Ω	N-6188		
34	Osc. Coil	.8Ω	6.3Ω	N-4645	14-1040	Add 50 MMFD from grid to high side tuning cap.
35	Input IF	21Ω	20Ω	N-4813	16-6658	
36	Output IF	29Ω	29Ω	N-4646		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SONORA PART No.		
37	Bayonet	6-8	0.15	Brown			Type 47

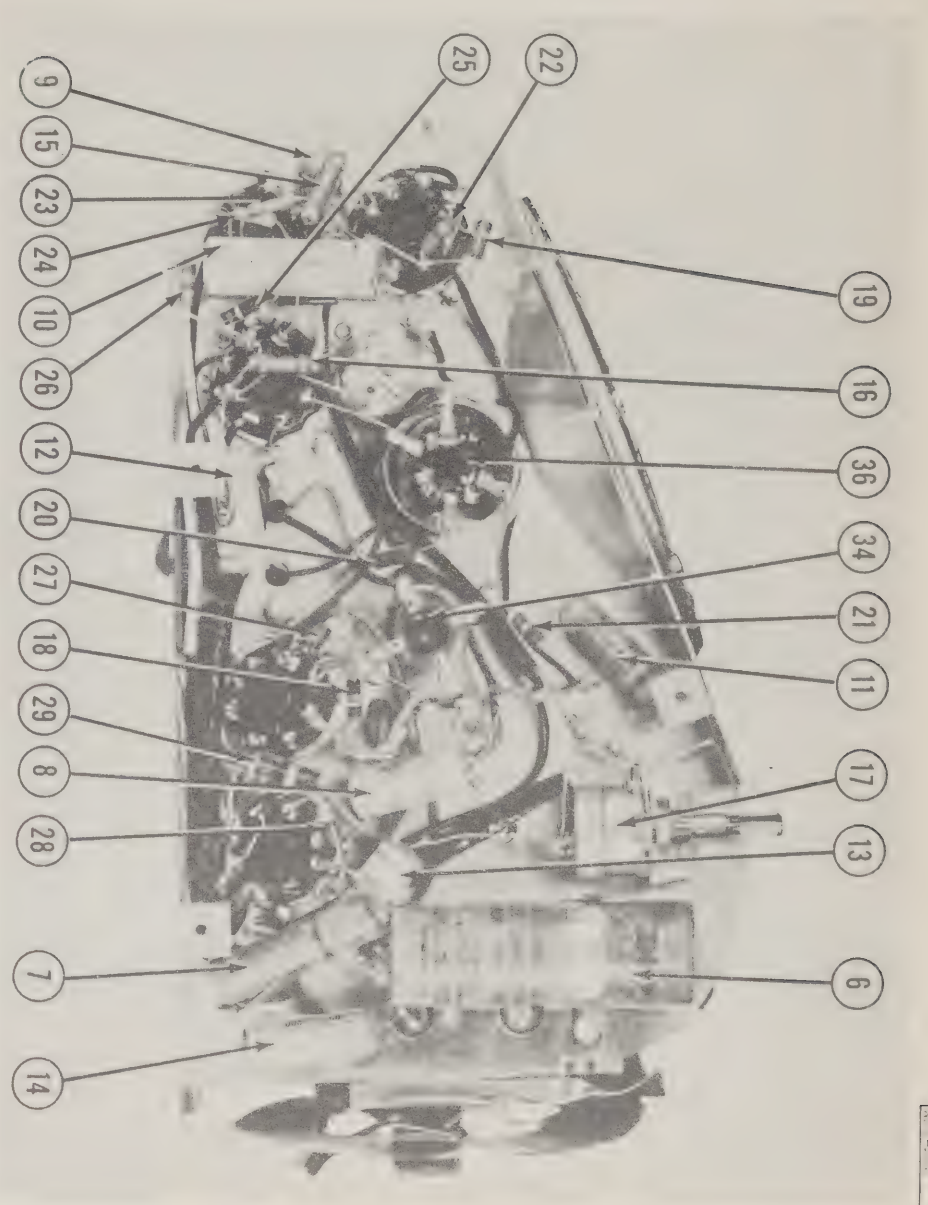
MISCELLANEOUS

ITEM No.	PART NAME	SONORA PART No.	NOTES
38	2 Gang Var. Cap	N-6192	18-380 MMF, 30-195 MMF

PUSHBUTTON ADJUSTMENTS

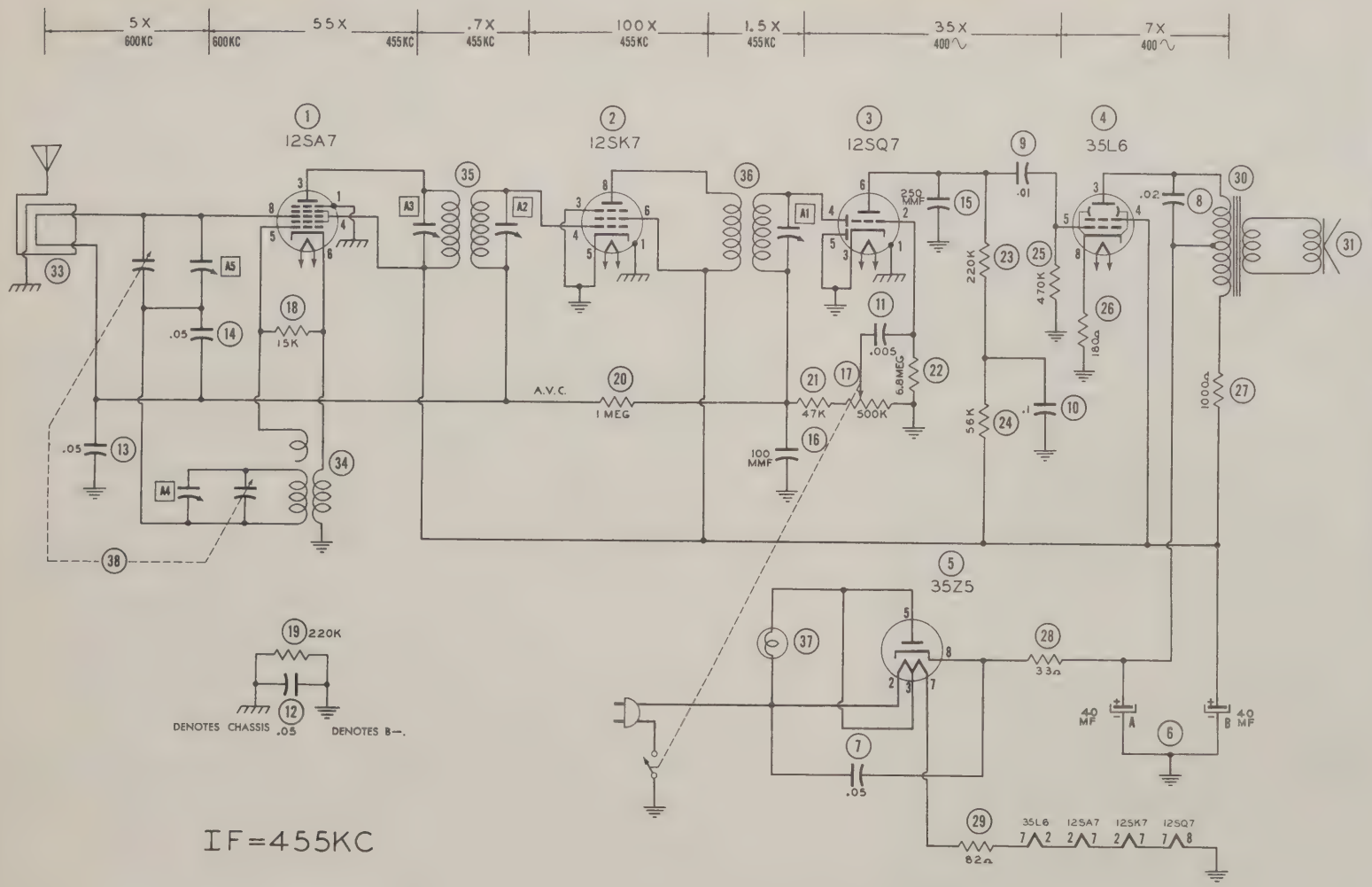
1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Remove buttons by pulling straight out and loosen set screws behind each button.
3. Manually tune in desired station and push any pushbutton shaft in completely.
4. Holding shaft in tighten set screw firmly.
5. Check accuracy of setting by detuning with manual control and retuning with pushbutton shaft. If setting is slightly off repeat above steps.
6. To set the remaining buttons follow the same procedure as outlined above.
7. Replace buttons.

CHASSIS—BOTTOM VIEW



DATE 10/47 SET #27 FOLDER #4717-27

SONORA MODEL WAU-242



IF=455KC

Pin No	12SA7 Volt.	12SA7 Res.	12SK7 Volt.	12SK7 Res.
1	0V.	220KΩ	0V.	220KΩ
2	41VAC	40Ω	28VAC	27Ω
3	87VDC	300KΩ	0V.	0Ω
4	87VDC	300KΩ	-.4VDC	1.6 Meg.
5	-8.5VDC§	15KΩ	0V.	0Ω
6	0V.	.8Ω	87VDC	300KΩ
7	28VAC	27Ω	14VAC	12Ω
8	-.4VDC	1.6 Meg.	87VDC	300KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

Pin No.	12SQ7 Volt.	12SQ7 Res.	35L6GT Volt.	35L6GT Res.
1	0V.	220KΩ	0V.	INF.
2	-.8VDC	7 Meg.	41VAC	40Ω
3	0V.	0Ω	108VDC	300KΩ
4	-.6VDC	550KΩ	87VDC	300KΩ
5	0V.	0Ω	0V.	500KΩ
6	53VDC	580KΩ	80VDC	360KΩ
7	14VAC	12Ω	72VAC	70Ω
8	0V.	0Ω	5.6VDC	190Ω

Pin No.	35Z5GT Volt.	35Z5GT Res.
1	0V.	INF.
2	117VAC	190Ω
3	113VAC	185Ω
4	72VAC	70Ω
5	113VAC	185Ω
6	113VDC	300KΩ
7	68VAC	150Ω
8	115VDC	300KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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4717-27

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TEMPLE MODEL G-410
BATTERY OPERATED

TEMPLE MODEL G-410
BATTERY OPERATED

TEMPLE MODEL G-410

TRADE NAME	Temple, Model G-410
MANUFACTURER	Templetone Radio Mfg. Corp., New London, Conn.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY RATING	110-120 Volts AC-DC or 7½ Volt "A" Supply & 90 Volt "B" Supply in Pack Form. .150 Amp. @ 117 Volts AC or 47MA @ 7.5 Volts DC & 9MA @ 90 Volts DC
TUNING RANGE—BROADCAST	532-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The trimmer opposite A4 on the oscillator section of the tuning capacitor is preset at the factory and normally need not be adjusted unless it is found the receiver will not calibrate. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to stator of rear section of tuning capacitor. Low side to chassis.	455KC	Tuning capacitor fully open	Across voice coil	A1,A2, A3,	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200MMF to reduce hum modulation.
2		Loop	1700KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1550KC	Tune for maximum output.	"	A5	Adjust for maximum output.

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DATE 10/47 SET #27 FOLDER #4717-28

PARTS LIST AND DESCRIPTIONS

TEMPLE MODEL G-41(
BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TEMPLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1H5GT	1H5GT	5Z	
4	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TEMPLE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	40	150			DY-419	EL443†	AF888D	UP4415	◓ Filament Bypass
B	40	150	CE1-4A81						■ Filter
C	40	150							▲ "
D	20	150			M-20-150	UT201	PRS150-20	UP4215	"
6	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Output Plate Bypass
7	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
8	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	" "
9	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
10	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	" "
11	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	Converter Screen Bypass
12	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	.1	400		TP428	MPH-4-1	TC-1	484-.1	DT4P1	Line Filter
14	.2	400		TP429	S-4-2	TC-2	484-.2	DT4P2	RF Bypass Power Supply
15	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Filament Bypass-See Note
16	100			MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Oscillator Grid
17	220			MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Diode RF Filter
18	100			MC235	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass

Note-Not used in all models.
† Parallel last two sections.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	½	RP10-504B	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 19A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

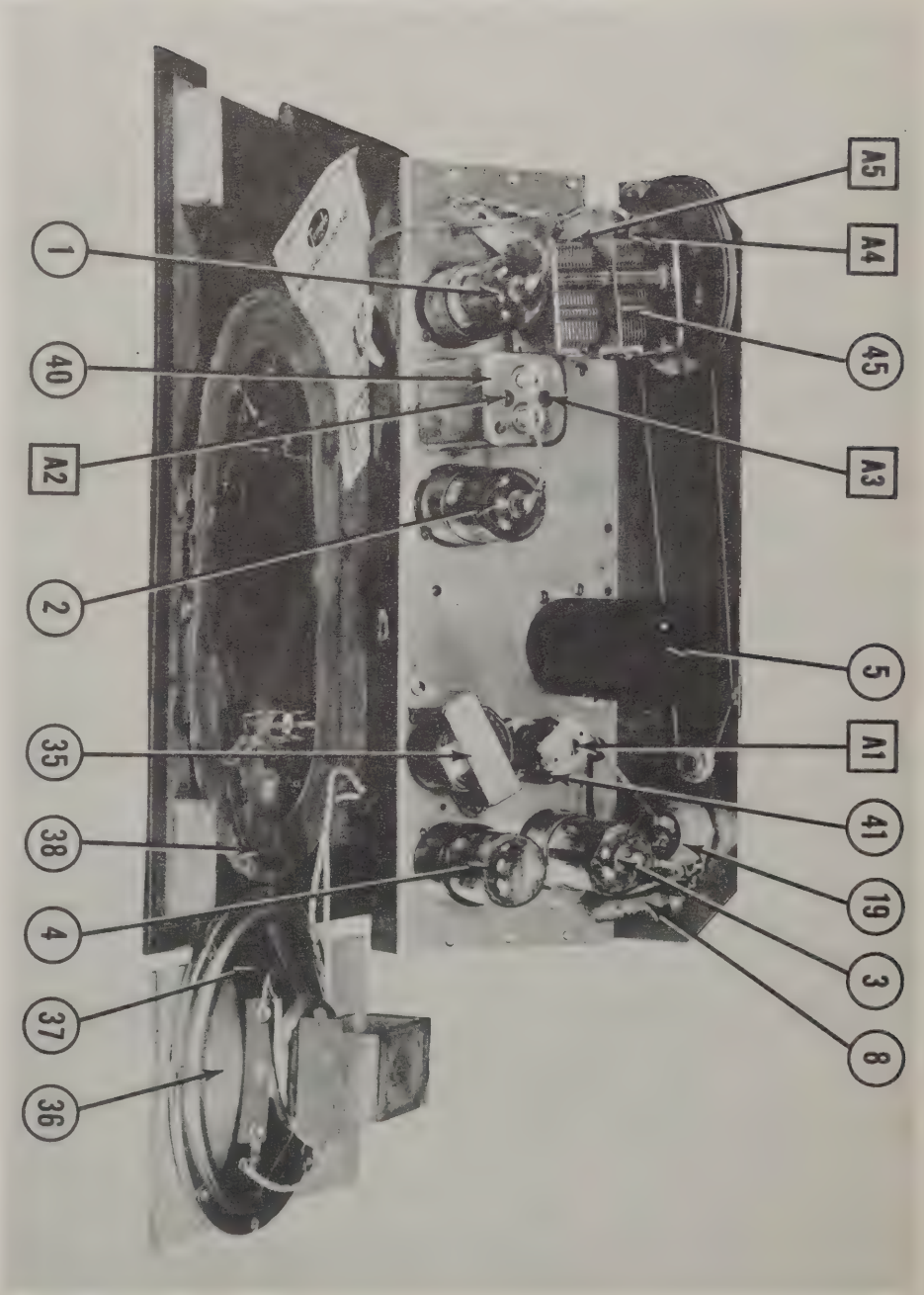
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	IRC PART No.	IDENTIFICATION CODES
20	220KΩ	½		BTS-220K	Red-Red-Yl. Oscillator Grid
21	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Converter Screen Dropping
22	2.2 Meg.	½		BTS-2.2 Meg	Red-Red-Grn. AVC Network
23	2.2 Meg.	½		BTS-2.2 Meg	Red-Red-Grn. " "
24	3.9 Meg.	½		BTS-3.9 Meg	Or.-White-Grn." "
25	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode RF Filter
26	3.9 Meg.	½		BTS-3.9 Meg	Or.-White-Grn. AF Grid
27	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
28	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
29	820Ω	½		BTS-820	Gray-Red-Br. Filament String
30	820Ω	½		BTS-820	Gray-Red-Br. " "
31	33Ω	1		BW-1-33	Or.-Or.-Blk. Surge Limiter
32	22Ω	½		BW-½-22	Red-Red-Blk. Filament String
33	2200Ω	1		BTA-2200	Red-Red-Red Filter
34A	1200Ω	10		AB-1250	Filament String
B	1350Ω			AB-1250	" "

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TEMPLE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	INSTALLATION NOTES
35	7000Ω	3.2Ω	460Ω	.44Ω	TA7-1	A-3878	T22S47	A-2931	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: TEMPLE PART No.	REPLACEMENT DATA: JENSEN PART No.	INSTALLATION NOTES
	FIELD	VC IMP.		ST-107	
36	PM	3.2Ω	EH-6-3	Mod. P5-V	
	CONE DIA.	VC DIA			
37	4½"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

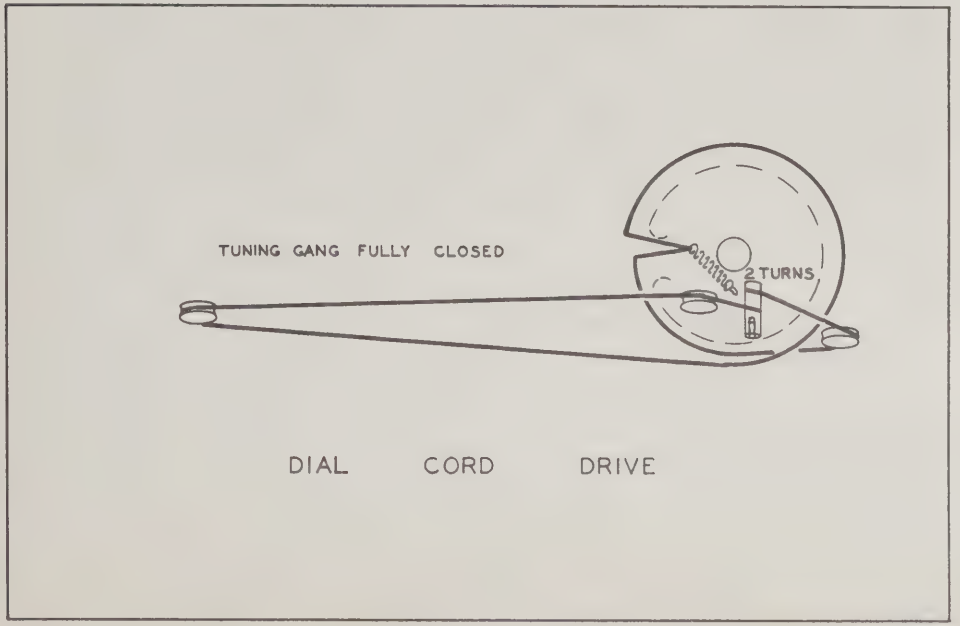
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: TEMPLE PART No.	REPLACEMENT DATA: MEISSNER PART No.
38	Loop Ant.	.1Ω	2Ω		
39	Osc. Coil	1.5Ω	6.3Ω		14-1040
40	Input IF	11Ω	18Ω	TM2-12	16-6658
41	Output IF	90Ω	90Ω	TM-13	

BATTERIES

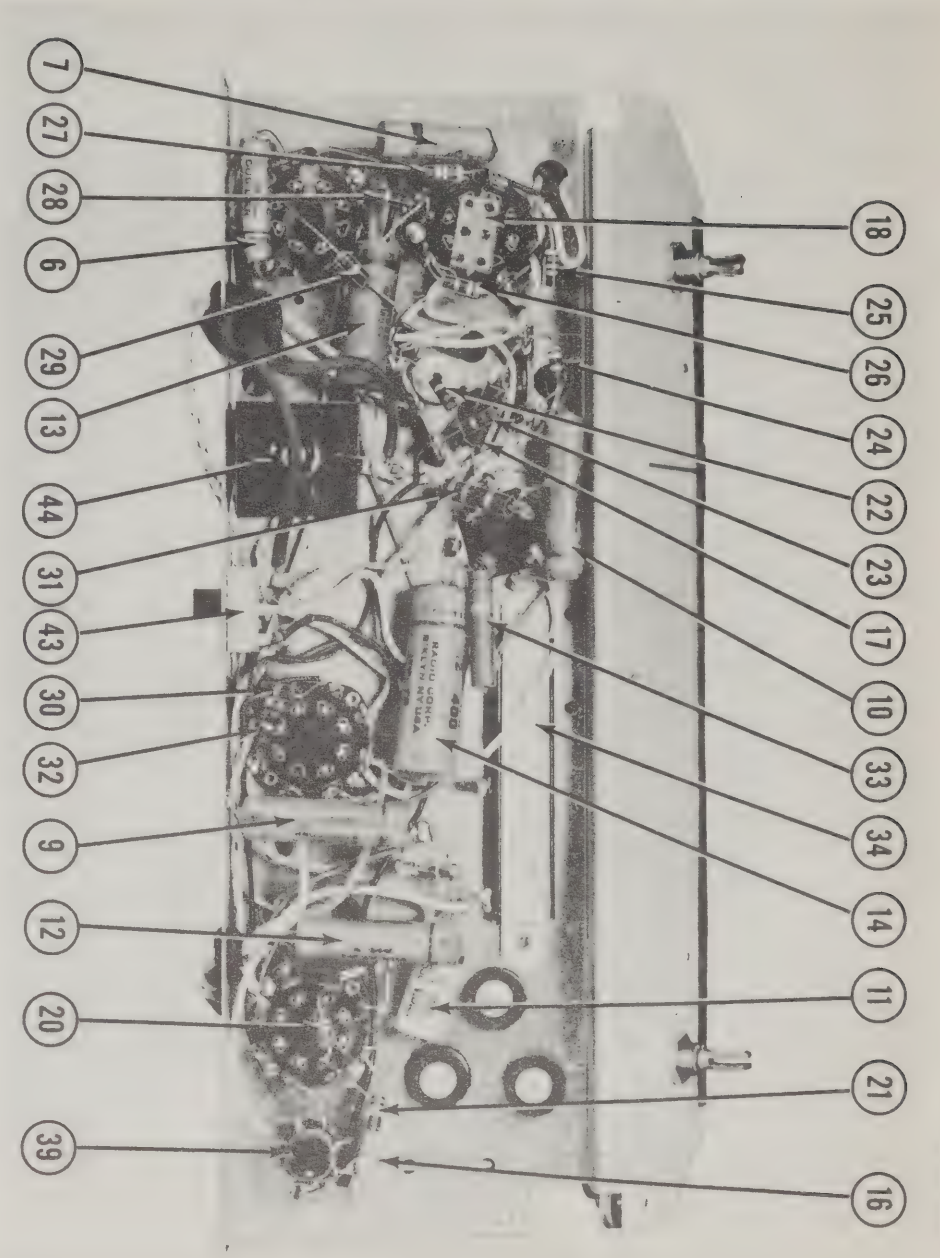
ITEM No.	VOLTAGE	TEMPLE PART No.	EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	INSTALLATION NOTES
42	7.5V "A" 90V "B"				#753	

MISCELLANEOUS

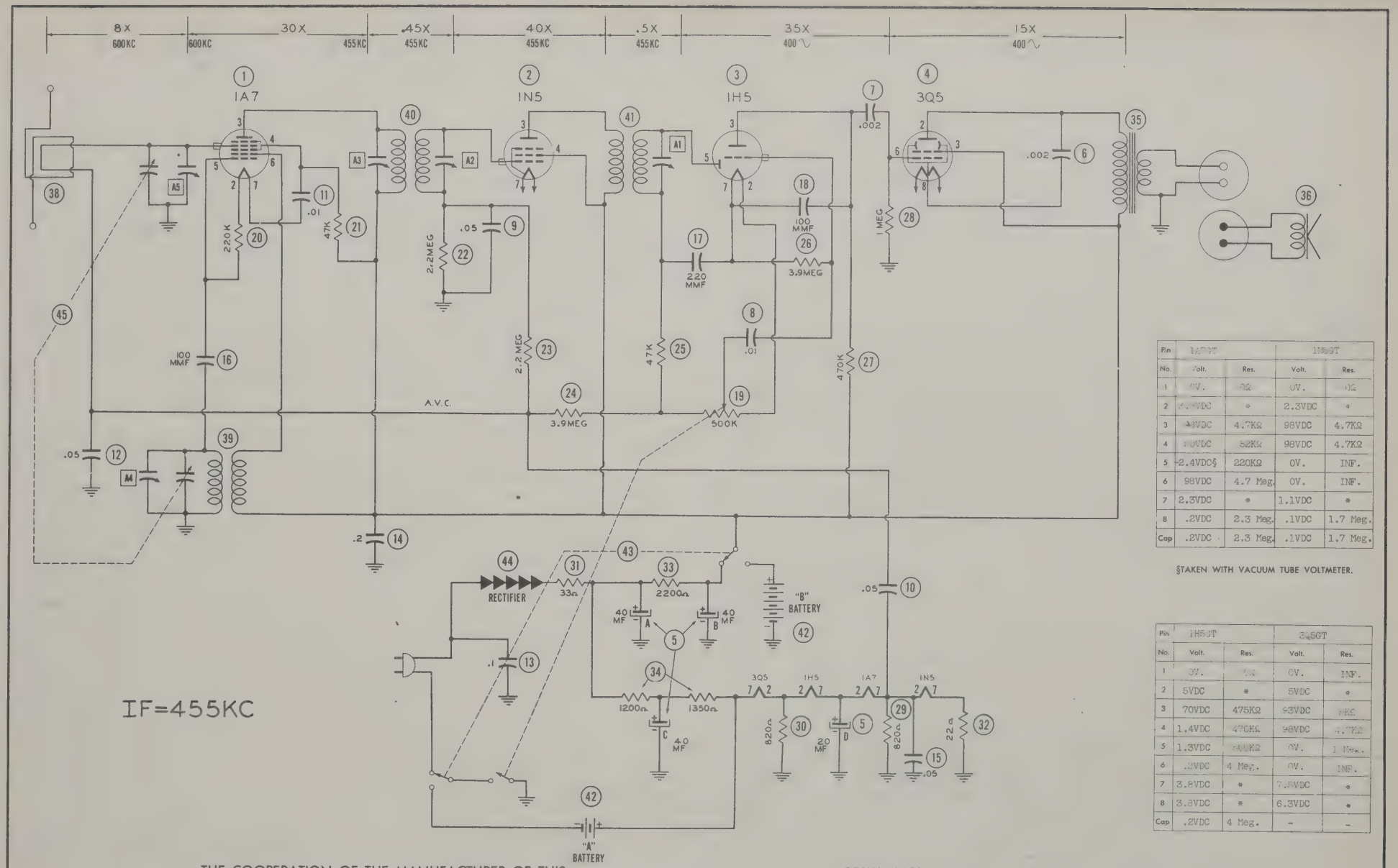
ITEM No.	PART NAME	TEMPLE PART No.	NOTES
43	Switch		Power Change-Over DPDT
44	Rectifier	ED-1	Selenium
45	2 Gang Var. Cap.	CV-16	23-450 MMF, 27-195 MMF



CHASSIS—BOTTOM VIEW



TEMPLE MODEL G-410 BATTERY OPERATED



Pin No.	1A7GT Volt.	1A7GT Res.	1N5GT Volt.	1N5GT Res.
1	0V.	0Ω	0V.	0Ω
2	2.3VDC	*	2.3VDC	*
3	98VDC	4.7KΩ	98VDC	4.7KΩ
4	90VDC	52KΩ	98VDC	4.7KΩ
5	2.4VDC§	220KΩ	0V.	INF.
6	98VDC	4.7 Meg.	0V.	INF.
7	2.3VDC	*	1.1VDC	*
8	.2VDC	2.3 Meg.	.1VDC	1.7 Meg.
Cap	.2VDC	2.3 Meg.	.1VDC	1.7 Meg.

§TAKEN WITH VACUUM TUBE VOLTMETER.

Pin No.	1H5GT Volt.	1H5GT Res.	3Q5GT Volt.	3Q5GT Res.
1	0V.	0Ω	0V.	INF.
2	5VDC	*	5VDC	*
3	70VDC	475KΩ	93VDC	5MΩ
4	1.4VDC	470KΩ	98VDC	4.7KΩ
5	1.3VDC	500KΩ	0V.	1 Meg.
6	.2VDC	4 Meg.	0V.	INF.
7	3.8VDC	*	7.5VDC	*
8	3.8VDC	*	6.3VDC	*
Cap	.2VDC	4 Meg.	-	-

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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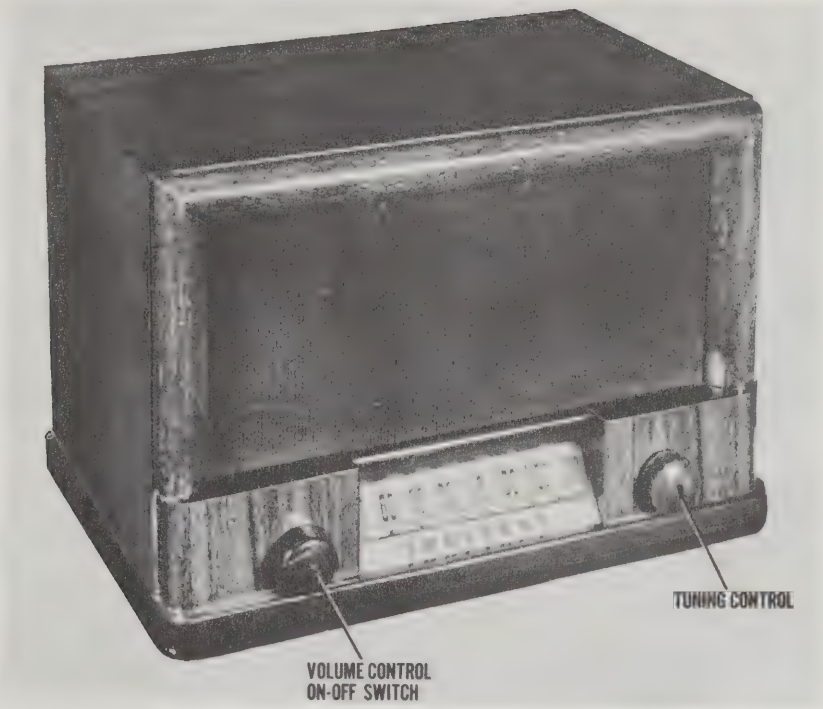
4717-28

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting a jumper across the two outside terminals of the volume control during stage gain measure-

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage

TRUETONE
MODEL D-2619 (Fact. No. 2701)



TRUETONE
MODEL D-2619 (Fact. No. 2701)

TRUETONE MODEL D-2619

TRADE NAME	Truetone, Model D-2619 (Factory No. 2701)
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .260 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning control fully counter-clockwise and set pointer 1/2" from left end of dial backplate. Before aligning rotate tuning shaft until carriage is at top stop position. Space oscillator coil slug 1-5/32" out from top of oscillator coil form. Space RF Slug 1-29/64" out from top end of RF coil winding. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
If regeneration prevails when loop is in correct position, re-adjust A5.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to Pin #4 of 12SK7 RF Tube (1). Low side to B-.	455KC	Tuning slugs completely out of coils.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2	.01 MFD	"	"	"	"	A5	Adjust for minimum output.
3		Loop	1620KC	"	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4		"	1400KC	Tune for maximum output.	"	A7	Adjust for maximum output.
5		"	700KC	"	"	A8	Adjust tuning core for maximum output. (Do not disturb carriage position). If more than one turn is required repeat last two steps until no further improvement can be made.

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PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D-2619

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	C-466A	2N511	DSB-2x40-150	TA-440	PRSA150-40-40	BRD4415	Filter - Red
B	40	150							" - "
8	.1	400	C-471A	TP428	MPH-4-1	TC-1	484-.1	DT4P1	Line Filter
9	.02	200	C-496A	TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
10	.01	200	C-468A	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.005	400	C-480A	TP408	S-6-005	TC-25	484-005	DT6D5	" "
12	.2	400	C-497A	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolation
13	.1	200	C-460A	TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supply
14	.01	400	C-500A	TP421	S-4-01	TC-11	484-01	DT4S1	Osc. Feedback
15	.1	200	C-460A	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
16	250	350	C-494A	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Tone Comp.
17	250	350	C-494A	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode Filter
18	50	500	C-495A	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid
19	1000	350	C-493A	MC255	MO.5-21	1FM-21	1468-001	1W5D1	RF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500KΩ	½	W444A	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

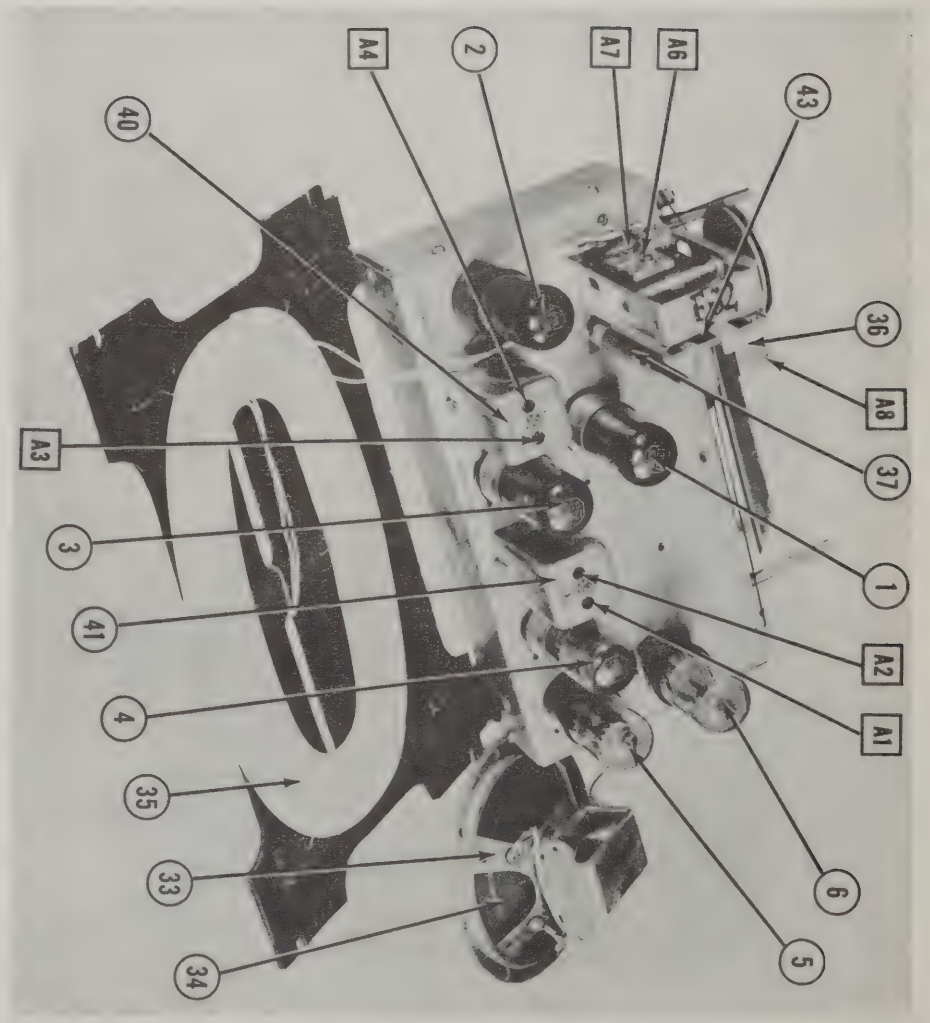
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
21	4700Ω	½	W-452A	BTS-4700	Yl.-Vi.-Red RF Plate Load
22	100KΩ	½	W-439A	BTS-100K	Br.-Blk.-Yl. Converter Grid
23	22KΩ	½	W-437A	BTS-22K	Red-Red-Or. Oscillator Grid
24	2.2 Meg.	½	W-442A	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
25	47KΩ	½	W-438A	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
26	10 Meg.	½	W-443A	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
27	220KΩ	½	W-440A	BTS-220K	Red-Red-Yl. AF Plate Load
28	470KΩ	½	W-441A	BTS-470K	Yl.-Vi.-Yl. Output Grid
29	150Ω	½	W-415A	BW-½-150	Br.-Grn.-Br. Output Cathode
30	1000Ω	1	W-433A	BTA-1000	Br.-Blk.-Red Filter
31	50Ω	10	W-43A	AB-50	Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
32	1900Ω	3.5Ω	192Ω	.75Ω	T-1368A	A-3876*	T22S45*	A-2928*	*Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: TRUETONE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-107		
33	PM	3.5Ω	H-244A	Mod. P5-V		
	CONE DIA.	VC DIA.				
34	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

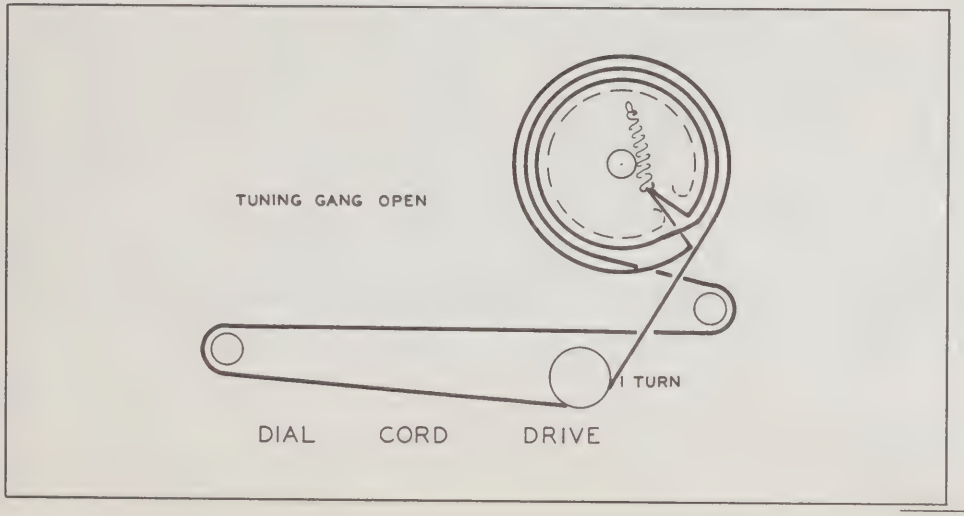
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	MEISSNER PART No.
35	Loop Ant.	.1Ω	.8Ω	A2154B	
36	Ant. Coil	7.5Ω	16Ω		
37	Osc. Coil	.5Ω	3.3Ω		
38	RF Choke		44Ω	T1372A	
39	" "		23.5Ω	T1365A	
40	Input IF	15.5Ω	18Ω	T-1361A	16-6658
41	Output IF	15.5Ω	15.5Ω	T-1362A	16-6660

DIAL LIGHT

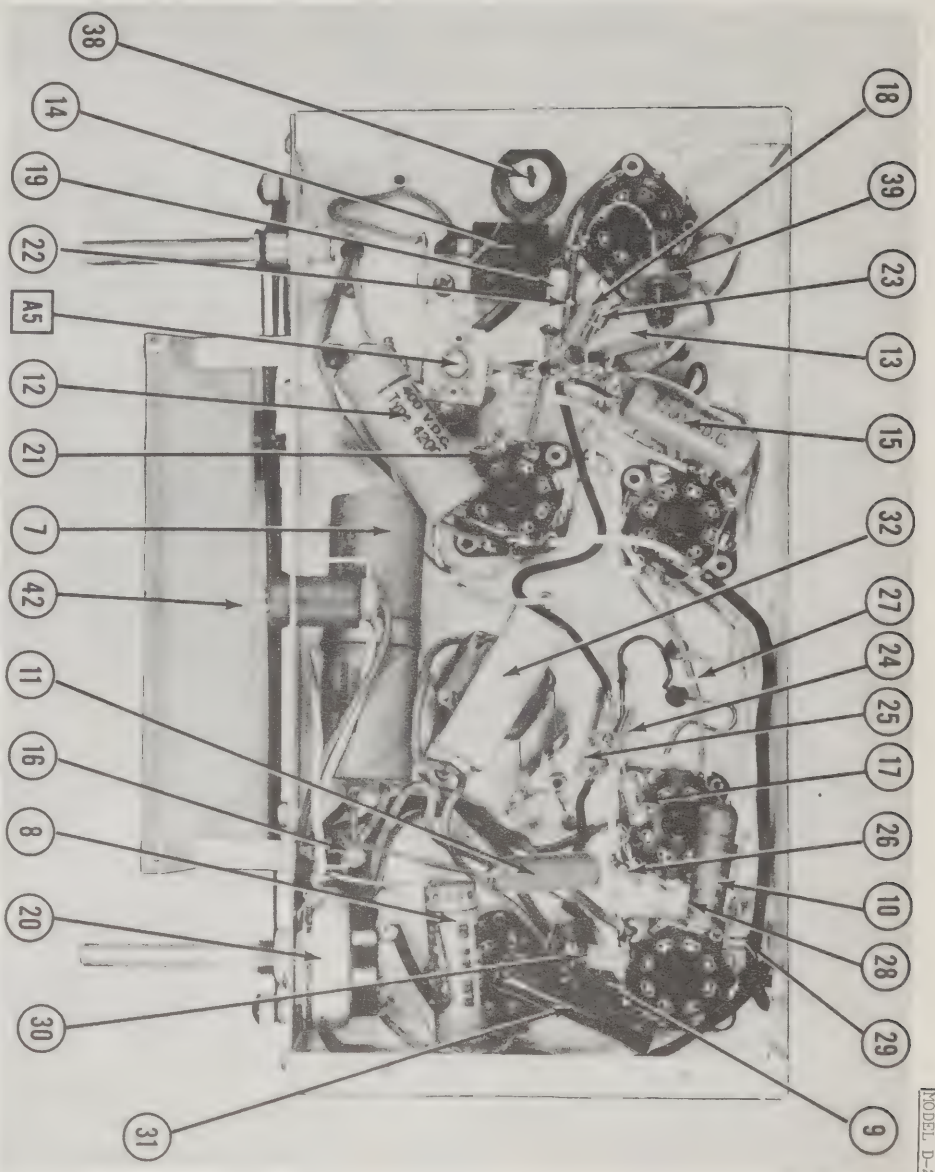
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: TRUETONE PART No.		INSTALLATION NOTES
42	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

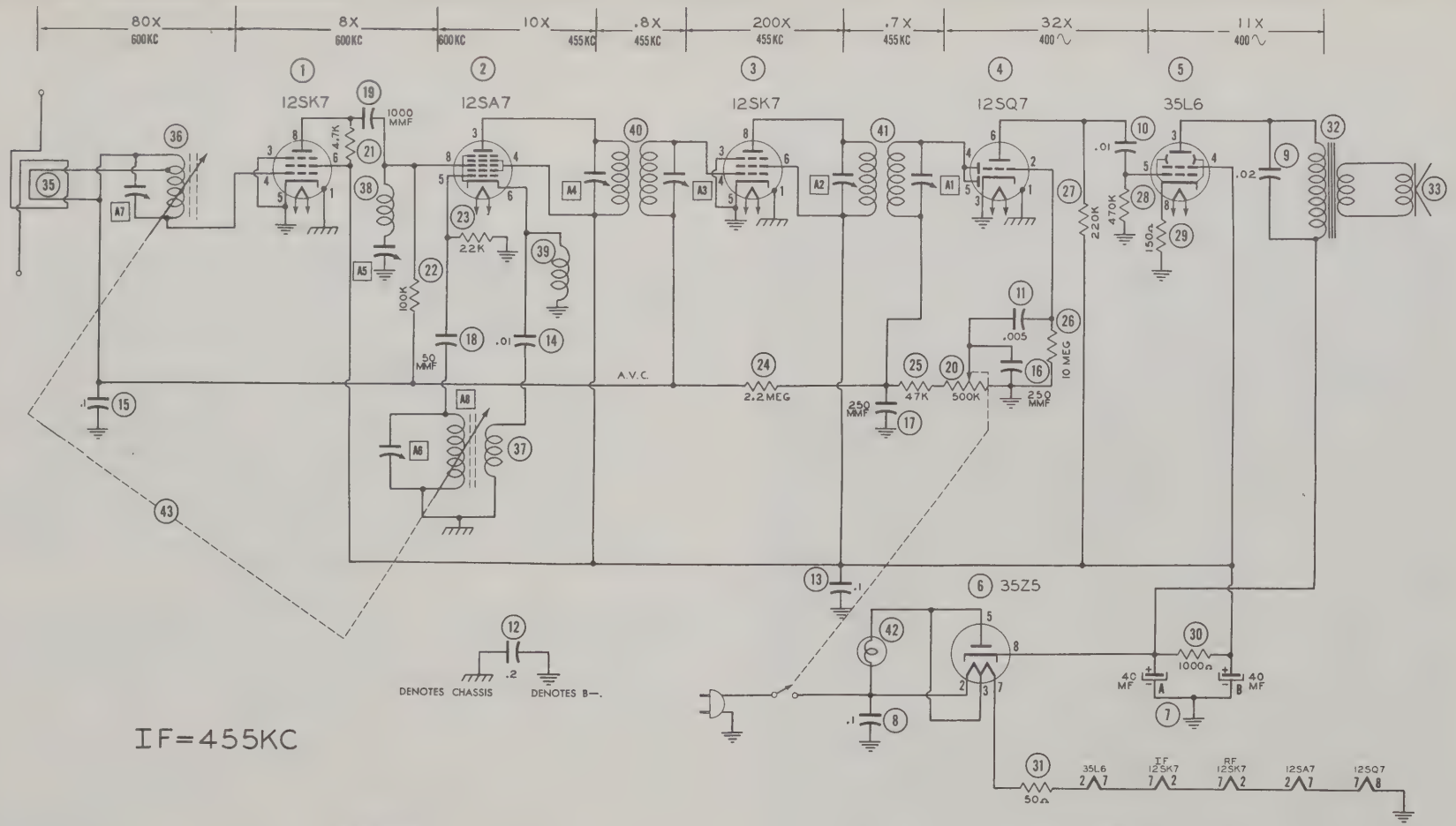
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
43	Tuner Assembly	A2143A	
A5	Trimmer	C483A	Wave Trap Adj. (10-160 MMF)
	Dial Glass	H247B	
	Dial Pointer	U1461A	



CHASSIS—BOTTOM VIEW



TRUETONE MODEL D-2619



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	23VAC	0V.	-.6VDC	0V.	92VDC	35VAC	50VDC
2	12SA7GT	0V.	23VAC	92VDC	92VDC	-12VDC§	.2VDC	12VAC	-.4VDC
3	12SK7GT	0V.	35VAC	0V.	-.65VDC	0V.	92VDC	46VAC	92VDC
4	12SQ7GT	0V.	-.75VDC	0V.	-.6VDC	-.6VDC	63VDC	12VAC	0V.
5	35L6GT	0V.	80VAC	120VDC	92VDC	0V.	0V.	46VAC	5VDC
6	35Z5GT	0V.	117VAC	111VAC	0V.	111VAC	0V.	85VAC	125VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	INF.	24Ω	0Ω	3 Meg.	0Ω	130KΩ	36Ω	135KΩ
2	12SA7GT	INF.	24Ω	120KΩ	120KΩ	20KΩ	23Ω	12Ω	3 Meg.
3	12SK7GT	INF.	36Ω	0Ω	3 Meg.	0Ω	130KΩ	46Ω	130KΩ
4	12SQ7GT	INF.	10 Meg.	0Ω	550KΩ	550KΩ	350KΩ	12Ω	0Ω
5	35L6GT	INF.	80Ω	130KΩ	130KΩ	500KΩ	INF.	4[illegible]Ω	150Ω
6	35Z5GT	INF.	160Ω	155Ω	INF.	155Ω	INF.	155Ω	130KΩ

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TRUETONE
MODEL D-2709

TRUETONE
MODEL D-2709

TRUETONE MODEL D-2709

TRADE NAME	Truetone, Model D-2709 (Factory No. 470)
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC-DC Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 12SA7GT Converter, 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	520-1590KC RATING .260 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side of chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	50 MMFD.	High side to ant. lead. Low side to chassis.	1590KC	"	"	A3,A4.	Adjust for maximum output.

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"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 10/47 SET #27 FOLDER #4717-30

PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D-2708

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	8AD	
2	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
3	Power Output	50L6GT	50L6GT	7AC	
4	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	TRUETONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5A	50	150	2073	FP214	DY-5030-150	EL-35	AF1010D	UP5315	▲ Filter
B	30	150							■ "
6	.05	400		TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
7	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
8	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
9	.001	500		TP404	S-6-001	TC-21	684-001	DT6D1	AF Plate Bypass
10	.002	400		TP405	S-6-002	TC-22	484-002	DT6D2	Audio Coupling
11	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	.001	600		TP404	S-6-001	TC-21	684-001	DT6D1	Ext. Ant. Coupling
13	100	500		MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Diode Filter

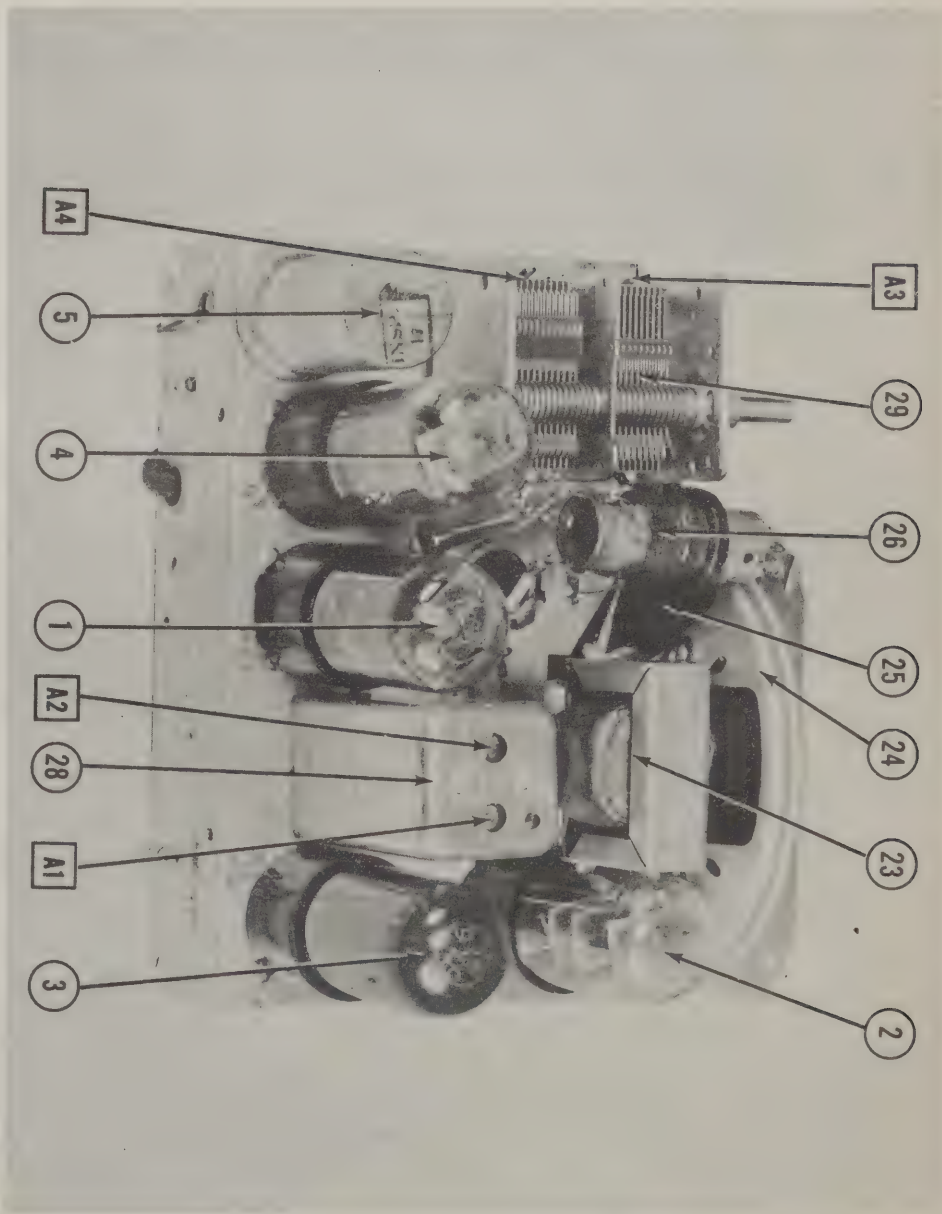
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
14A	2 Meg.	½	2480	MR55	D13-139	M-66-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	Not Req.	Attach to 14A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.	
15	18KΩ	¼		BTS-18K	Br.-Gray-Or. Oscillator Grid
16	4.7 Meg.	¼		BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
17	4.7 Meg.	¼		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
18	220KΩ	¼		BTS-220K	Red-Red-Yl. AF Plate Load
19	330KΩ	¼		BTS-330K	Or.-Or.-Yl. Output Grid
20	22Ω	½		BW-½-22	Red-Red-Blk. Line Dropping
21	3300Ω	1		BTA-3300	Or.-Or.-Red Filter
22	18Ω	½		BW-½-18	Br.-Gray-Blk. Rectifier Ballast
30	240K	¼		BTS-240K	Red-Yl.-Yl. Ant. Pri. Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
23	3100Ω	3.5Ω	245Ω	.5Ω	1300	A-3876*	T22S45*	A-2728*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.		
24	FIELD PM	VC IMP. 3.5Ω	5877	ST-113 Mod. P4-X		
25	CONE DIA. 4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

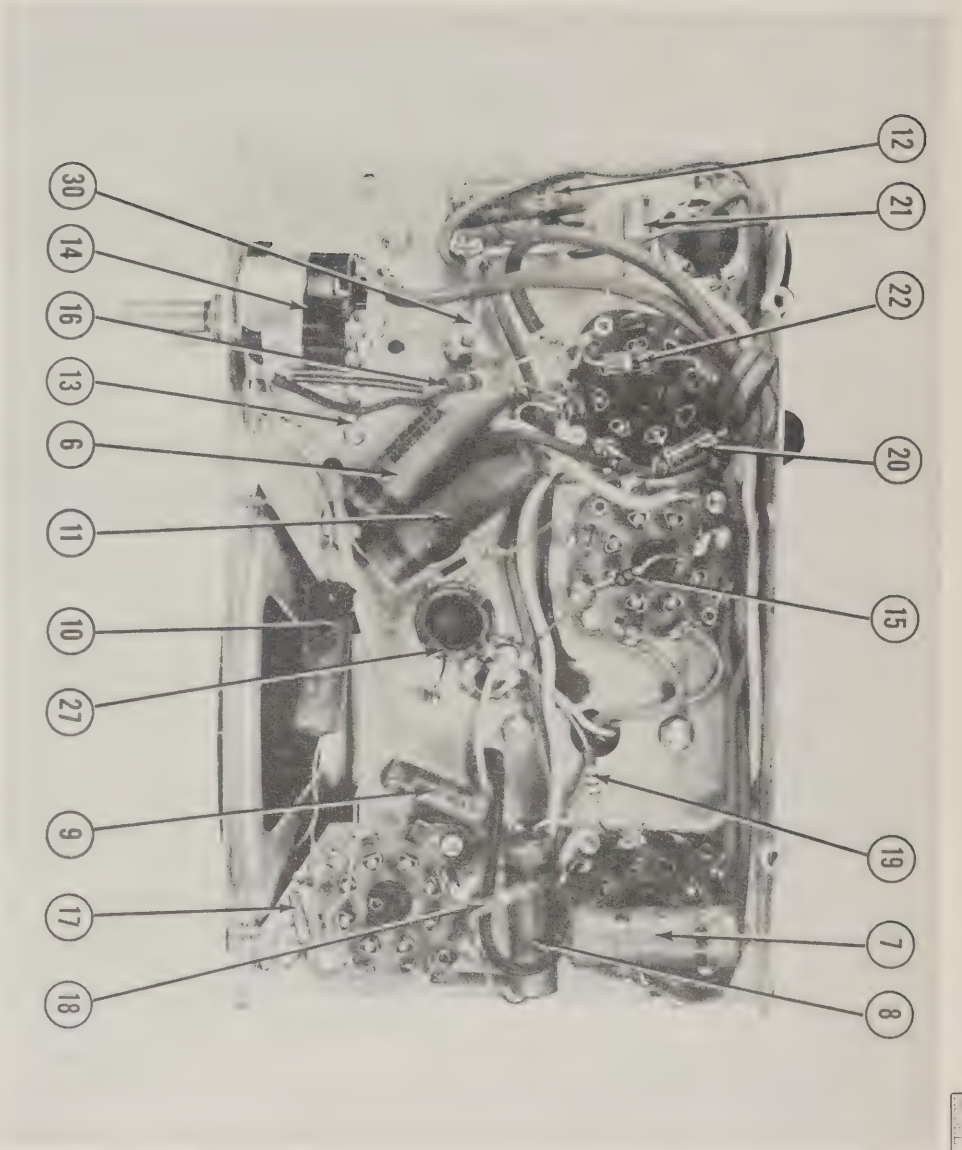
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
26	Ant. Coil	60Ω	5Ω	28185	14-1026	
27	Osc. Coil		9Ω	28184	14-1040	Add 50 MMF from osc. grid to high side tuning cap.
28	Output IF	26Ω	26Ω	3376		

MISCELLANEOUS

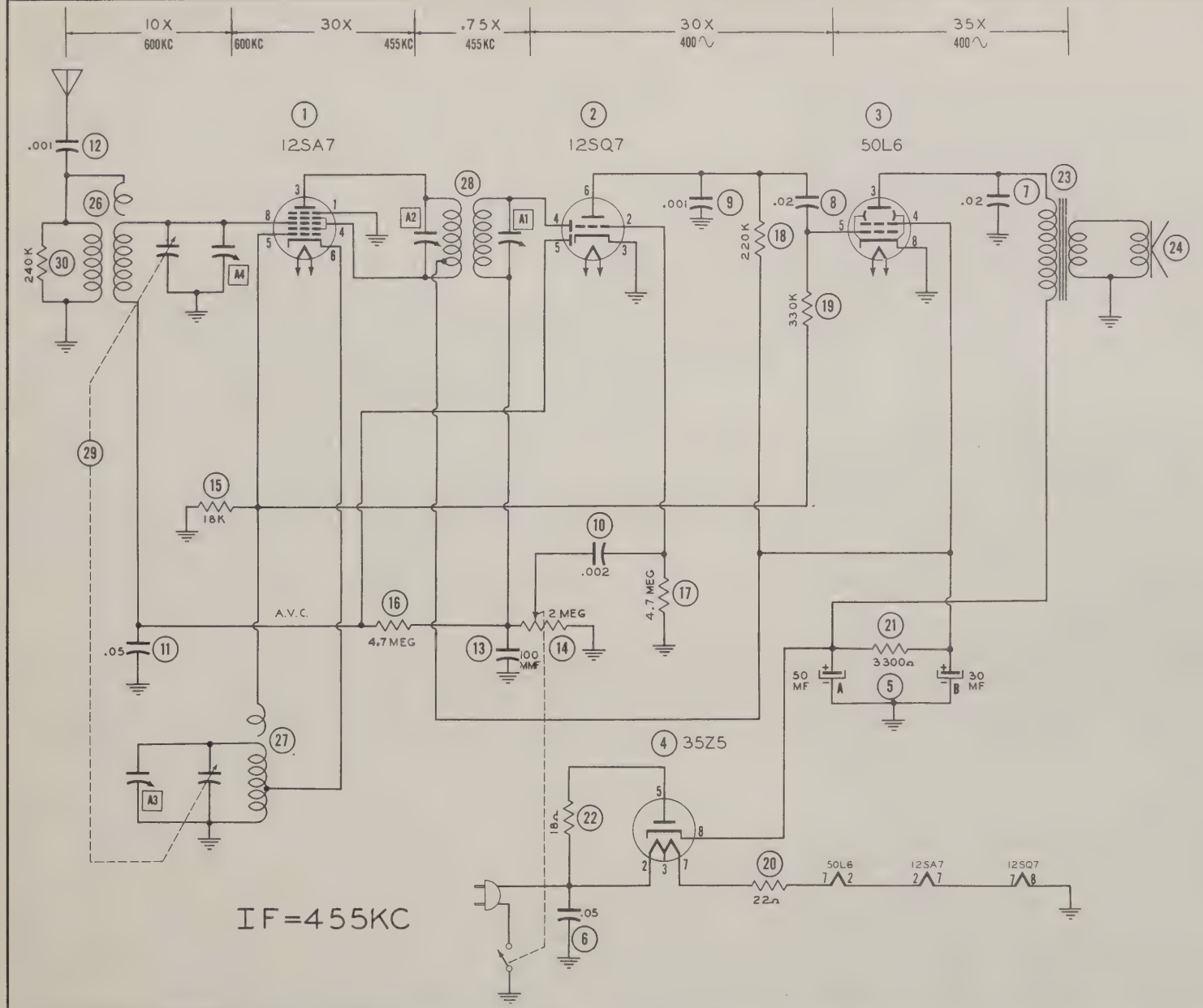
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
29	2 Gang Var. Cap.	1675	18-465 MMF, 27-194 MMF

CHASSIS—BOTTOM VIEW



DATE 10/47 SET #27 FOLDER #4717-30

TRUETONE MODEL D-27



Pin No.	12SA7GT Volt.	12SA7GT Res.	12SQ7GT Volt.	12SQ7GT Res.
1	0V.	0Ω	0V.	0Ω
2	25VAC	25Ω	-.8VDC	5 Meg.
3	80VDC	1MΩ	0V.	0Ω
4	80VDC	100KΩ	-.4VDC	2.2 Meg.
5	-3.8VDC§	1MΩ	-.4VDC	7 Meg.
6	0V.	.5Ω	45VDC	320KΩ
7	13VAC	1Ω	13VAC	1Ω
8	-.4VDC	7 Meg.	0V.	0Ω

§TAKEN WITH VACUUM TUBE VOLTMETER.

Pin No.	50L6GT Volt.	50L6GT Res.	35Z5GT Volt.	35Z5GT Res.
1	0V.	0Ω	-.4VDC	7 Meg.
2	25VAC	25Ω	117VAC	125Ω
3	113VDC	100KΩ	110VAC	120Ω
4	80VDC	100KΩ	0V.	INF.
5	-1.1VDC	360Ω	116VAC	140Ω
6	0V.	INF.	80VAC	75Ω
7	80VAC	75Ω	85VAC	85Ω
8	0V.	0Ω	125VDC	100KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 4-717-30

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

TOP VIEW

GENERAL INFORMATION

This changer is designed to play and automatically change a series of up to twelve 10-inch or ten 12-inch records, not intermixed. It operates on 115 volts, 60 cycle, alternating current. The last record will be repeated until the changer is turned off.

Since this mechanism was introduced just before this material went to press there can be no comprehensive list of users. For the present it will be used exclusively by THE INTERNATIONAL DETROLA CORPORATION.

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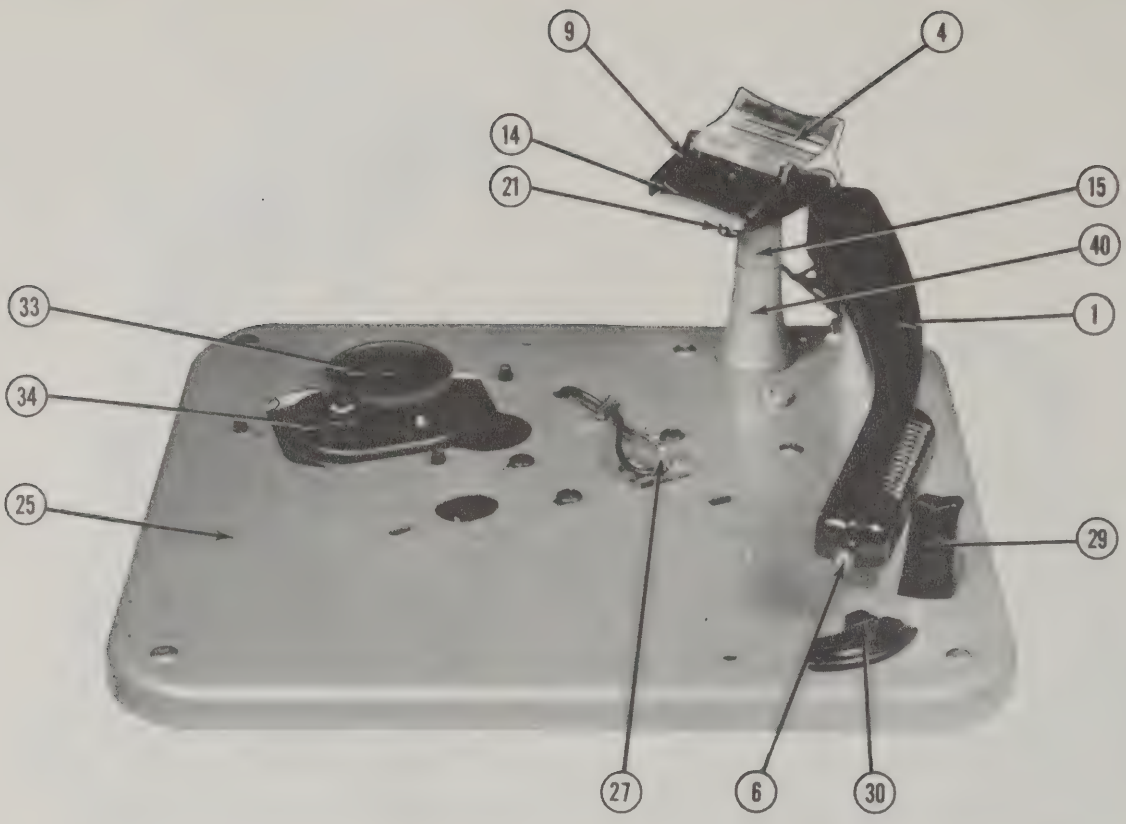
10/27 Set 27 folder 4717-31

UTAH
MODEL 7000

UTAH
MODEL 7000



TOP VIEW LESS TURNTABLE

THE CHANGE CYCLE

During the change cycle the pickup arm (1) is raised from the record and moved toward its rest (29), the next record is ejected, and the pickup arm is lowered to the starting groove of the next record.

The revolving drum (69) is driven by the spring belt (70) from the pulley bearing (36), which revolves with the turntable.

During the change cycle the release bracket assembly (54) releases the ratchet (58) so that it is able to fall and engage one of the bosses of the revolving drum (69). A leaf spring under the cam (57) adds pressure to the fall of the drive ratchet. The ratchet causes the drum (69) to drive the cam (57) which controls the functions of the change cycle. After a complete revolution of the cam the ratchet is returned to its original position where it is lifted off the boss on the drum by the release bracket (54), and the cam ceases rotation.

The release bracket holds the ratchet with the aid of a spring (55). It is tripped so that the ratchet is released by one of two means: by the control lever (42), or by the pickup arm trip lever (41).

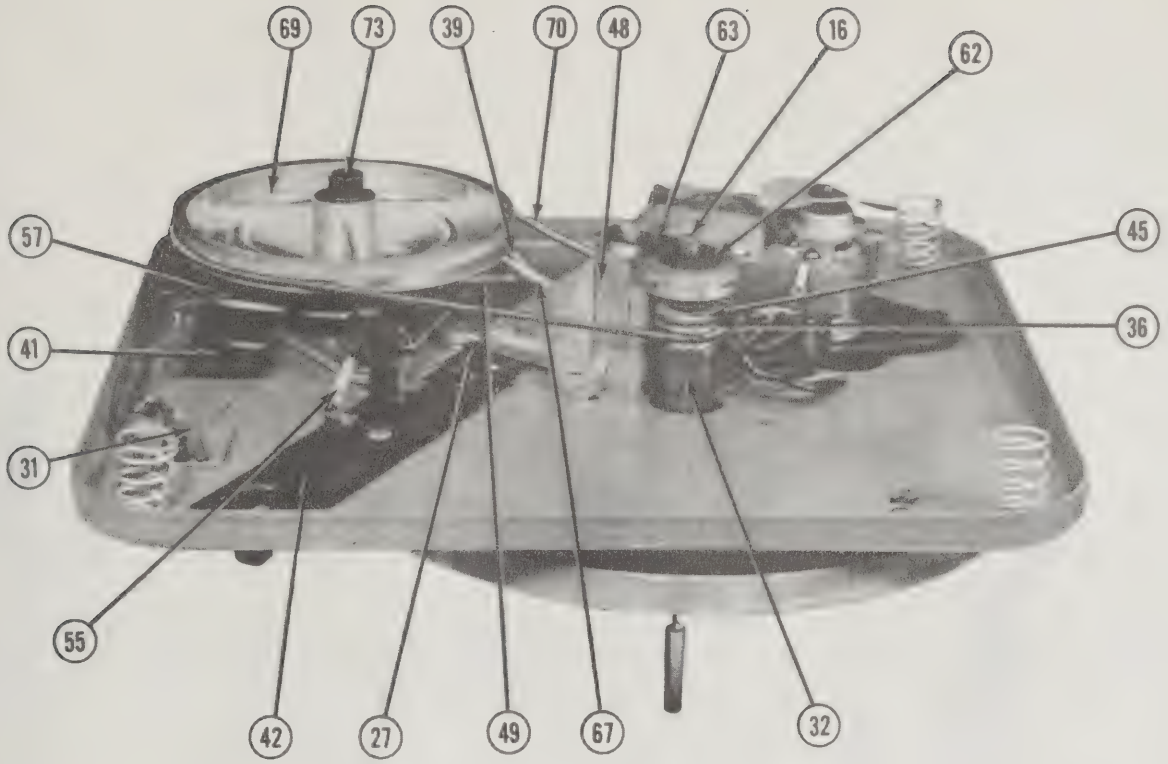
If the control slide (30) is pushed to the left, the control lever (42) turns on the switch (27), which is in the motor circuit. At the same time, or at any time that the control is moved to the left, a bend of the control lever will strike the release bracket (54), causing it to pivot and release the drive ratchet.

As the pickup arm nears the end of a record, the trip lever (41), which moves with the pickup arm, engages the trip dog (54A) with its serrated end. The eccentric groove in the record causes the pickup arm to oscillate. The backward motion of the pickup arm and the lever (41) causes the dog (54A) to push against its pivot point, thus causing the release bracket (54) to drop the ratchet (58).

As the cam (57) rotates with the drum during the change cycle, the pickup lift shaft (8) rides up an incline to a ledge on the periphery of the cam. This raises the pickup arm off the record. During the remainder of the change cycle the lift rides this ledge, keeping the pickup arm elevated until the changing is complete.

A follower stud (52A) on the record adjustment lever (52) is pulled into a groove on the cam at the beginning of the cycle. As the cam rotates, the stud follows the groove and causes the pickup arm to swing out beyond the edge of the records during the time that a record is being ejected and then returns it to a position over the outside edge of the records.

The shape of the cam (57) is elliptical at one portion of its outer edge. The roller (61) attached to the record ejector lever (56) follows the outside edge of the cam. As the cam revolves, the elliptical portion pushes against the roller and causes the lever (56) to move, thereby turning the shaft. The shaft



BOTTOM VIEW

extends up to the ejector cam (13). The ejector cam is turned by the shaft and moves the ejector plate (14) so that it pushes a record off the shelf. As the main cam continues to revolve, the roller (61) rides around the elliptical portion of the cam, back to its original position, with the aid of the ejector return spring (67). This returns the shaft, the ejector cam, and the ejector plate to their original positions.

The record adjustment shaft assembly (43) is rotated by the record support shelf (15) and controls the difference in the movement of the record adjustment lever (52) between the 12-inch and 10-inch record positions. The cam (43) is eccentric and has two notches. According to the position of the record support shelf (15) one of these notches is engaged by the index stud (37A) on the index lever (37) through the slot in the record adjustment lever (52), with tension applied by the indexing spring (39).

REMOVAL OF THE TURNTABLE

The turntable is removed by holding the pulley bearing (36) while turning the turntable counterclockwise. When the threads of the turntable bearing (17) are free of the pulley bearing the assembly of the turntable and the turntable bearing may be lifted over the spindle. The locking nut (17) holds the turntable to the turntable bearing. The turntable is keyed to the bearing by a keyway on the upper plate of the bearing. When reassembling, the key should be engaged in order that the turntable will be level. Also, when replacing the turntable, care should be taken that the idler wheel of the motor is pushed under the edge of the turntable so that the rim of the turntable will not damage the rubber tire.

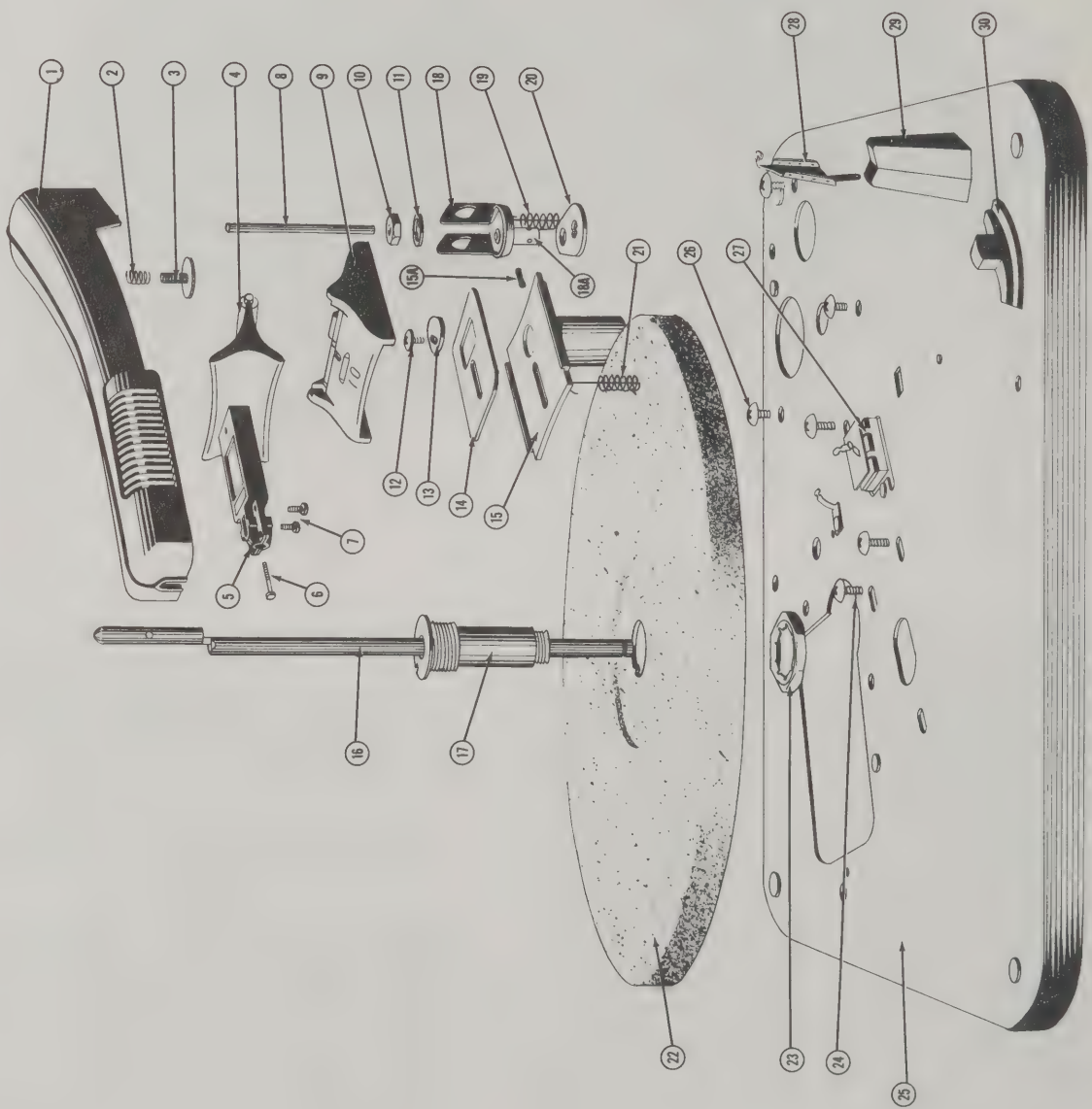
ADJUSTMENT OF PICKUP ARM HEIGHT

If the needle does not come down far enough to contact the first record on the turntable or does not rise high enough to clear the top of a complete stack of records, the height of the pickup arm may be adjusted. Turn the height adjustment screw (3) until the desired height is obtained.

REMOVAL AND REASSEMBLY OF THE CAM AND DRUM

Exercise care when removing the cam (57) and drive drum (69) assembly, as the stud (73) which holds this assembly to the plate (40) has a left hand thread.

When reassembling the cam and drum, several parts must be positioned for correct assembly. If the cam has been removed from the stud the friction pad (72) will need to be replaced on the smaller part of the stud so that when the cam is pressed on the stud the pad will fit inside the cam bearing surface. While replacing the cam, the ratchet (58) will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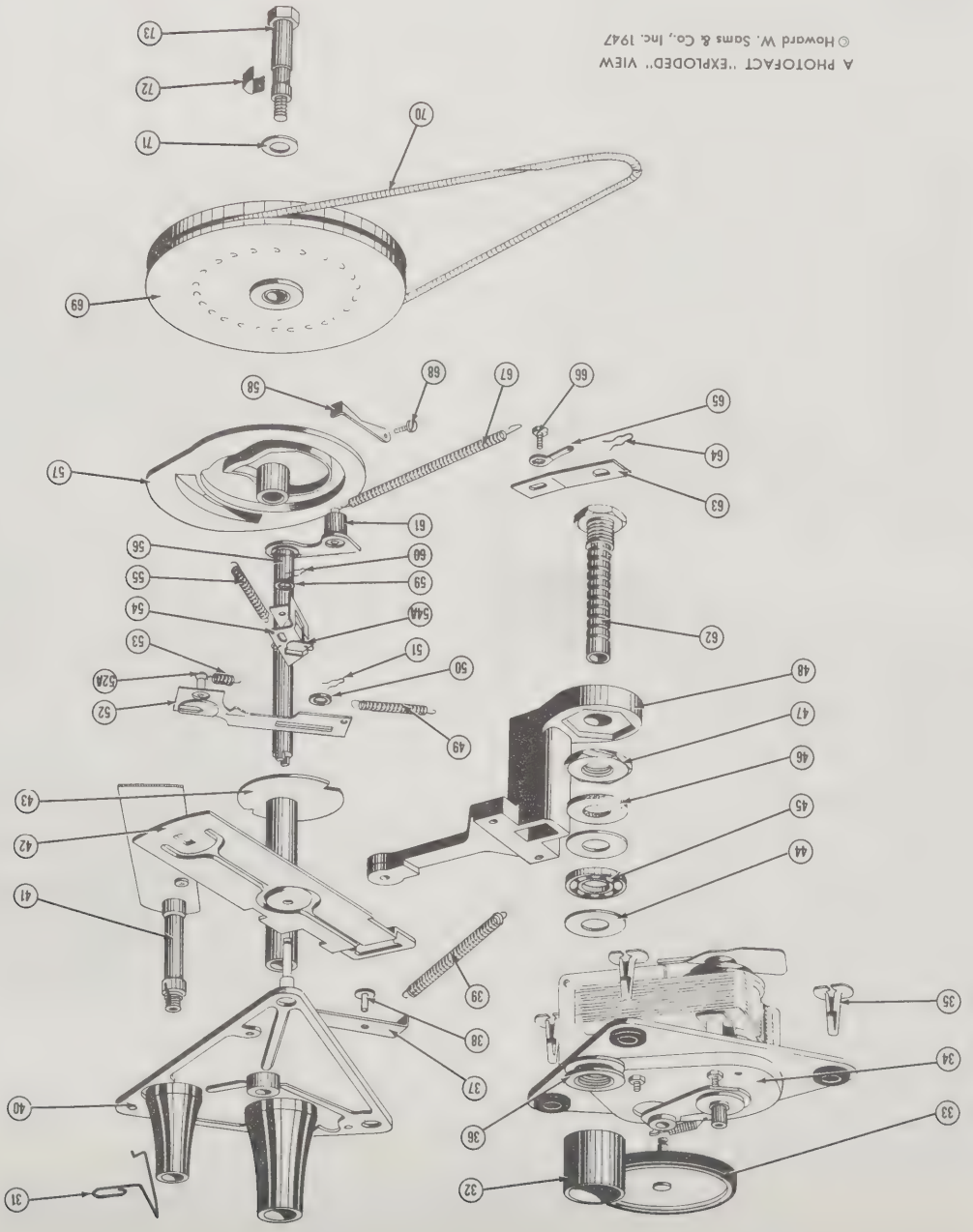
A PHOTOFACT "EXPLODED" VIEW
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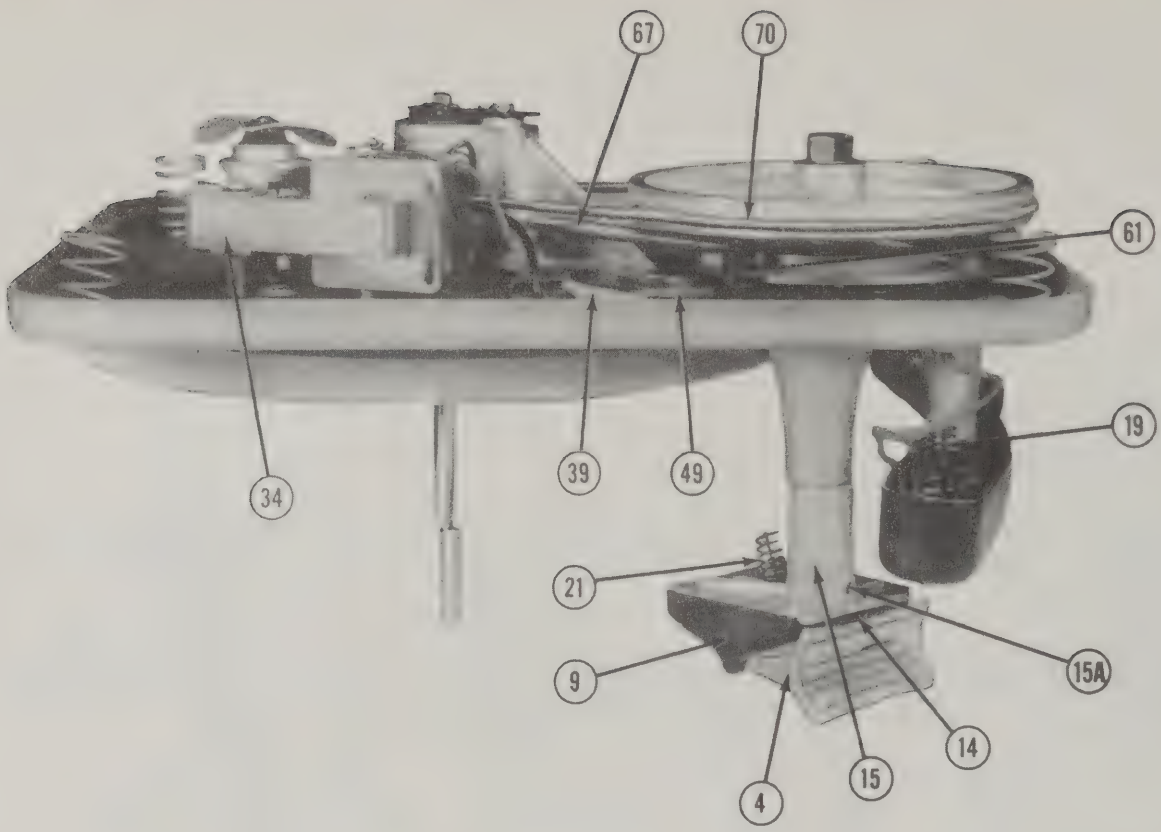


BACK VIEW—BOTTOM

need to be held against its spring so that it will be in the right direction from its mounting.

To replace the assembly of the cam, drum, and stud in the changer, first check that the lift shaft (8) is inserted in the pickup arm bearing (41). The pickup arm should be held on its rest (29) by the retainer (28) in order that the trip lever (41) will be stationary and that the cam may be matched to the follower stud (52A) so that the stud is fitting into the widest part of the groove which completely encircles the cam.

While tightening the stud (73), the cam must be held stationary and the release bracket and the ejector roller must be held away from the cam for clearance.

ADJUSTMENT OF RECORD SHELF AND SPINDLE POSITION

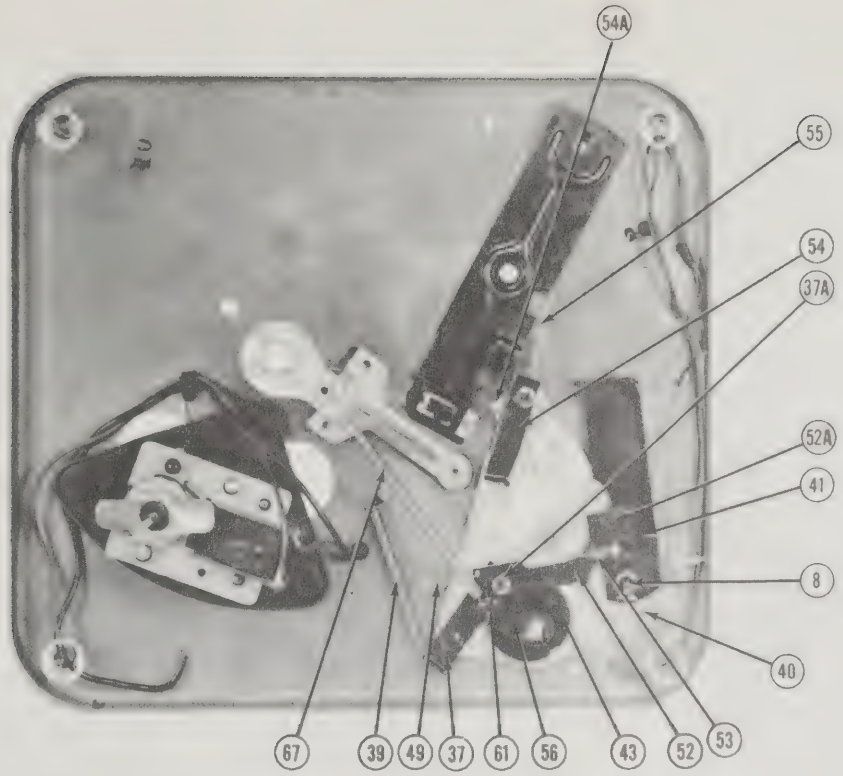
The spindle (16) must be the correct distance from the shelf (15) and the shelf must be aligned with the spindle in order that the records will drop properly. These adustments are made with standard 10-inch records. The spindle and shelf positions should be such that the records do not fall off either the shelf or the ledge of the spindle. When a record is being ejected it should fall clear of both the shelf and the spindle ledge.

To adust the spindle distance, remove the turntable and loosen slightly the three Phillips head screws (24) that hold the center post strut (48) to the base plate (25). With the record shelf in the 10-inch position, carefully place a standard 10-inch record so that it rests on the shelf and on the ledge of the spindle. Adjust the distance by sliding the spindle assembly toward or away from the shelf and retighten the screws (24) after the proper adjustment is obtained.

To adjust the shelf alignment loosen the set screw (15A) beneath the 12-inch shelf (narrow ledge). Have the 10-inch shelf toward the spindle. Place a standard 10-inch record over the spindle, allowing it to rest on the spindle ledge and record shelf. Be sure the record shelf is in the correct position in relation to the cam of the record adustment shaft (43) under the motor board. When the 10-inch ledge is toward the spindle, the wider section of the cam (43) should also be toward the spindle. Rotate the shelf slightly in either direction to line up the curvature of the record edge with the shelf and tighten the set screw (15A).

ADJUSTMENT OF PICKUP ARM POSITIONING

A simple adjustment to the changer may be made if the pickup arm frequently falls off the edge of a standard record or starts playing a standard record too far in on the music grooves. This adjustment is made by varying the position of the pivot bracket



BOTTOM VIEW LESS CAM AND DRUM

(18) in reference to the position of the pickup arm bearing plate by turning the adjustment stud (18A). Adjust so that the needle lands approximately 1/8" in from the edge of a standard record.

TROUBLES

1. Motor fails, is sluggish, or overheats:
   (a) Check for broken wire, defective plug, faulty switch (27), or faulty linkage between control lever (42) and switch.
   (b) Check that motor coils are not open or defective.
   (c) Motor bearings may need lubrication with light machine oil.
   (d) If oil or grease are present on turntable rim and idler wheel, replace the idler wheel and thoroughly clean the turntable rim with carbon tetrachloride.
2. Changer fails to cycle properly:
   (a) The lead through the pickup arm from the crystal cartridge may not have enough slack to allow the arm sufficient freedom.
   (b) The release bracket (54) and trip dog (54A) are critical items in the changer. Both should pivot freely on the studs to which they are assembled. If they do not, clean and relubricate with fine oil.
   (c) Check that the ratchet (58) is able to fall freely and with downward pressure from its spring and that it is bent properly to engage a boss on the drum (69).
   (d) Check that the serrated lever (41) has not been bent so that the end of it is above the level of the trip dog (54A).
3. Changer stalls or is jerky during change cycle:
   (a) Check that drive belt (70) is not loose or slipping.
   (b) The friction pad (72) may be applying too little or too much friction. Too little friction usually results in jerking and too much in stalling. By proper bending of the pad more or less friction may be obtained.
4. Changer cycles continuously:
   (a) The release bracket (54) may not be catching the ratchet (58). Check that neither are bent to an improper shape and that there is tension from the spring (55).
5. Records do not drop correctly:
   (a) Check adjustment of spindle (16) and shelf (15) positions.
   (b) Check that the spindle is firmly mounted by the flat spring (63) so that it has no wobble.
   (c) The ejector cam (13) may have been reassembled backwards.
   (d) There should be no binding of the record ejector shaft (56), the record ejector plate (14), or the ejector cam (13).

PARTS LIST

Ref. No.	Part No.	DESCRIPTION	Ref. No.	Part No.	DESCRIPTION
1	D-50418	Pickup arm	37A	A-50132	Index stud
	B-50448	Pivot arm	38		Rivet
2	A-50458	Spring, height adjustment	39	A-50032	Indexing spring
3	A-50457	Screw, height adjustment	40	D-50485-1	Plate, ejector and pickup arm
4	B-50454-1	Record pressure plate	41	B-50421	Bearing, pickup arm
5	A-50802-2	Crystal pickup cartridge, L-70		A-50321	Lever, pickup arm trip
6	(Part of 5)	Thumb screw	42	B-50440	Lever, control slide
7	A-50804	Screw 4-40 fil. hd.	43	B-50483	Record adjustment shaft assembly
8	A-50422	Shaft, pickup arm lift	44	A-50497	Thrust washer
9	C-50453-1	Record shelf cover	45	A-50907	Ball bearing, thrust
10	BN121C05	Hex. nut ¼ x 28 x 3/16	46	BF-24WYA1	Felt washer
11		Keyed washer	47	A-50494	Strut bearing nut
12	BS 012C01	Screw, 6-32 x ¼ Ph. hd.	48	D-50481	Center post strut
13	A-50433	Ejector cam	49	A-50076	Pickup arm lead-in spring
14	B-50452	Record ejector plate	50	A-50832	Washer, 5/16 x .167—.172 x .025
15	C-50451-1	Record support shelf	51	A-51163	Spring clip
15A	BA 114B01	Set screw, 8-32 x 3/16	52	A-50869	Record adjustment lever
16	B-50480	Spindle assembly	52A	A-50472	Stud, pickup arm cam follower
17	B-50491	Turntable bearing	53	A-50867	Spring, trip assembly
18	B-50447	Bracket, pivot	54	B-50407	Release bracket
18A		Adjustment stud, needle set-down point	54A	A-50408	Dog, release bracket
19	A-50449	Counterbalance spring		A-50406	Spring, dog, release bracket
20	A-50446	Plate, pickup arm bearing	55	A-50076	Reject spring
21	A-50455	Spring, record pressure plate	56	A-50431	Shaft, record ejector
22	C-50496-1	Turntable		A-50436	Lever, record ejector
23	BN771 W02	Locking nut, ¾-16	57	D-50061	Cam
24	BS014D01	Screw, No. 8-32 x 5/16 Ph. hd.	58	A-50062	Cam drive ratchet
25	D-50461-1	Base plate assembly	59	A-50832	Washer 5/16 x .167—.172 x .025
	A-50475	Spring, shock mounting	60	A-51163	Spring clip
26	BS014B03	Screw, No. 8-32 x 3/16 Ph. hd.	61	A-50437	Roller
27	A-50102	Switch, SPST	62	B-50493	Strut bearing
28	B-50468	Retainer, pickup arm	63	A-50499	Spring, flat, spindle
29	A-50469-1	Rest, pickup arm	64	B-55380-1	Spring clip
30	C-50441-1	Control slide	65	BL28E508	Solder terminal
31	B-50467	Spring, retainer	66	BS914C01	Mach. screw, No. 8-32 x ¼ hex. hd.
32	A-50495	Turntable bearing spacer	67	A-50471	Spring, ejector return
33	(Part of 34)	Idler wheel	68	BS508C01	Screw, No. 4-40 x ¼ bd. hd.
34	C-50470-1	Phonomotor (AC operation)	69	C-50700	Drive drum
	D-50470	Phonomotor (AC-DC operation)	70	B-50137	Spring belt, drive
35	B-50462	Snap fastener	71	BF1D3T13	Washer, flat, ⅜ OD x ⅜ ID x .010
36	A-50946	Pulley bearing	72	A-50058	Cam friction pad
37	A-50131	Index arm	73	A-50486	Cam and drum stud

TOP VIEW

GENERAL INFORMATION

This changer is designed to play up to twelve 10-inch or ten 12-inch records, not intermixed. Adjustment for record size is made by a lever on the top of the ejector mechanism housing. The last record is repeated until the changer is turned off. Manual operation is provided. The change cycle is initiated by a solenoid trip.

To remove this changer from its chassis pan, first reach through the hand holes in the pan and remove the spring clips from the mounting bolts.

LOADING

Set the record size selector lever for the size records to be played, and raise the pressure arm (1). Press the top section of the record spindle (6) down slightly and turn counterclockwise to the loading, or offset, position. Place the stack of records on the spindle so that the stack is supported by the record support plate (15), which protrudes from the ejector housing (2), and the shoulder of the record spindle. Lower the pressure arm until it rests on the record stack.

Set the three-position slide switch (3) to the "Auto" position and press the "Record Change" button on the radio control panel. The changer will then play the entire stack of records, repeating the last record until turned off. To unload, it is only necessary to turn the top section of the record spindle clockwise so that the stack of records may be lifted from the spindle.

Manufactured by: ZENITH RADIO CORPORATION • CHICAGO, ILLINOIS

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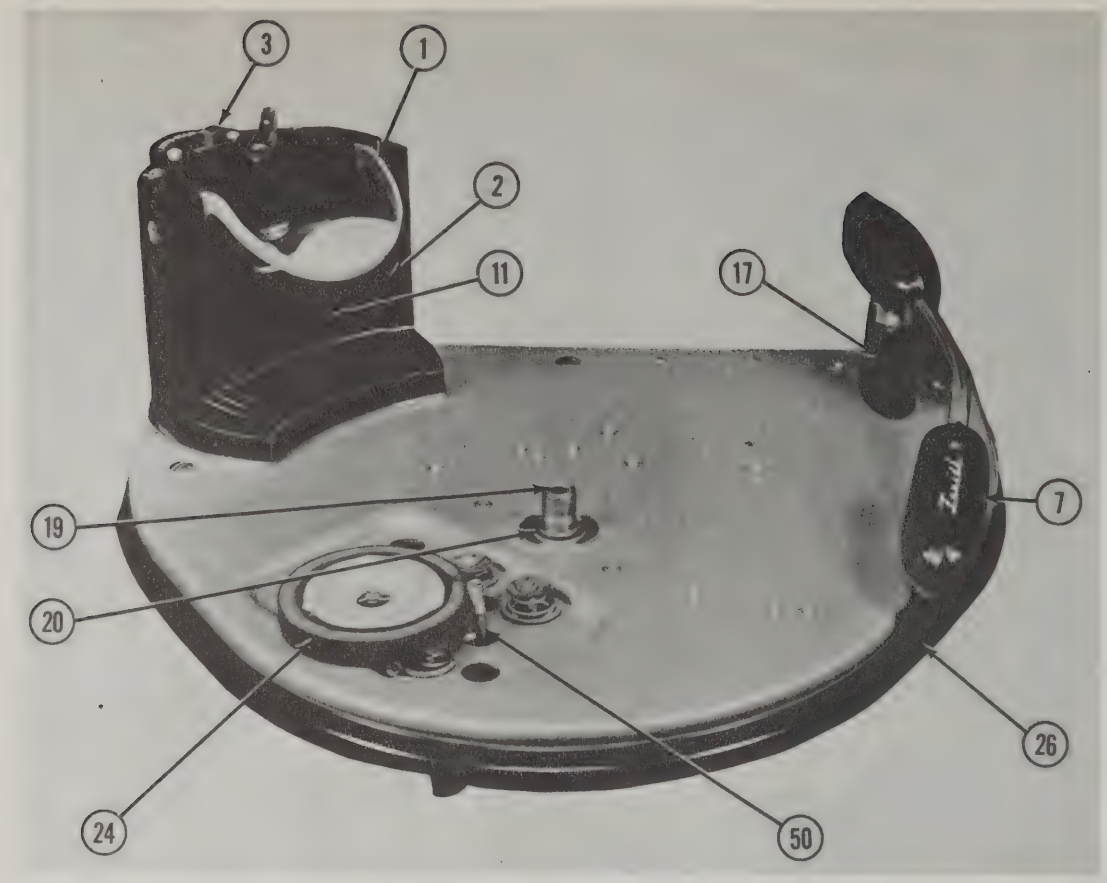
ZENITH
MODEL S-11468

ZENITH
MODEL S-11468



TOP VIEW MINUS TURNTABLE

THE CHANGE CYCLE

As the pickup arm moves toward the center of the record, the pawl trip lever (52) moves toward the cycling switch trip lever (39). At the completion of the playing of the record, the needle enters the eccentric groove and the pawl engages the trip lever, closing the cycling switch (70) and energizing the solenoid (66). If the record does not have an eccentric groove, the position trip lever (53) closes the cycling switch.

Energizing the solenoid starts the change cycle. This is accomplished either as described above or by pushing the "Record Change" button located on the radio control panel. As the armature of the solenoid moves, it pulls the clutch trigger (48), releasing the spring loaded trip lever plate (38). This actuates the clutch release lever (60), engaging the clutch (49). As the clutch release lever is tripped, it also opens the solenoid cutout switch (71), opening the solenoid coil circuit to prevent chatter. When the clutch is engaged, the drive chain (68) is driven by the drive sprocket (44) and, in turn, drives the timing sprocket (36) and the selector sprocket (61).

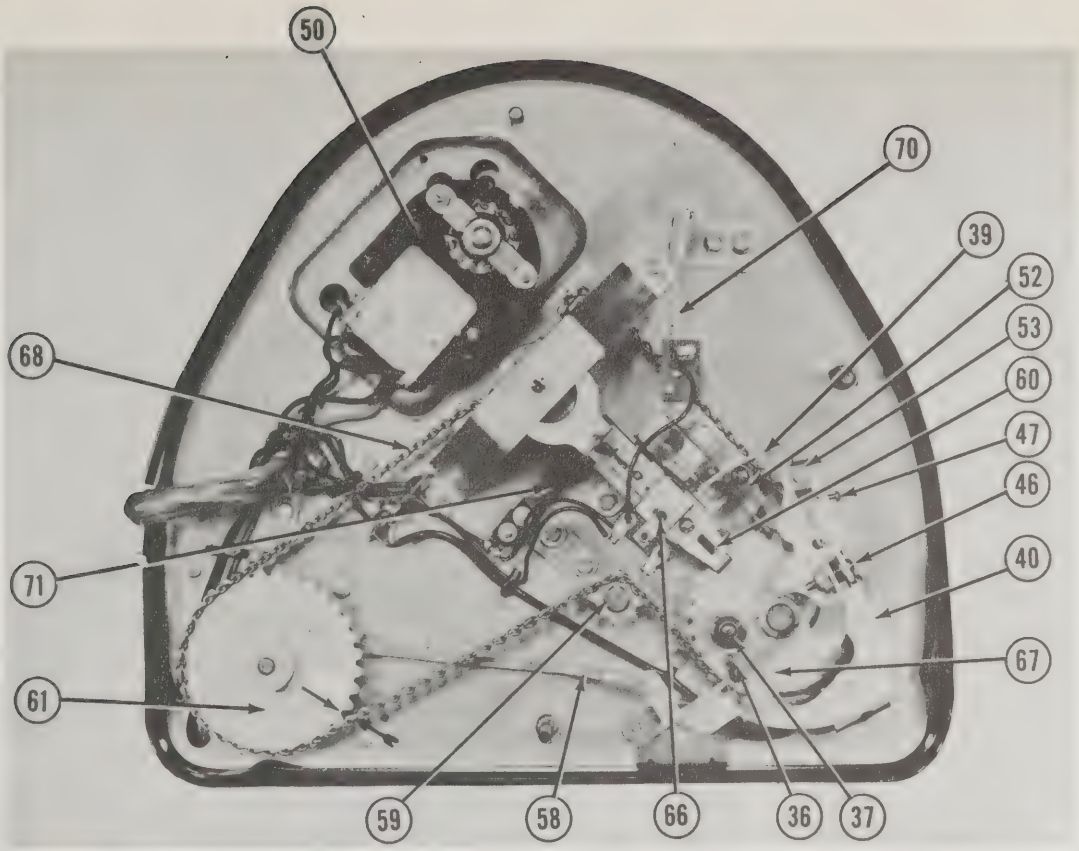
The timing sprocket raises the pickup arm lift pin (9) to raise the pickup arm from the record. The locating bushing pin (37) on the timing sprocket swings the pickup arm clear of the record by means of the pickup arm control lever (40). For 10-inch records, the record size lever (67), which has been brought into position by the selector cam link (58), raises the locating bushing as the timing sprocket revolves. For 12-inch records, the record size lever is moved aside so that the bushing is not raised; therefore, the locating bushing pin engages the pickup arm control lever. The difference in diameter of the bushing and its pin furnishes the one inch difference in the set down position of the pickup arm for 10 and 12-inch records.

The selector sprocket, which also moves at this time, drives the record ejector cam (5), actuating the record ejector plate (13), causing the bottom record of the unplayed stack to drop to the playing position on the turntable.

Half way through the cycle, the clutch trigger assembly is reset by means of a cam on the surface of the timing sprocket. This also closes the solenoid cutoff switch.

The locating bushing (or its pin, in the case of 12 inch records) brings the pickup arm into its set down position. The pickup arm lift pin is then lowered allowing the pickup arm to land on the record. At this point the clutch release lever is returned to its original position with its tip in a rectangular hole in the timing sprocket.

This releases the clutch and the change cycle is complete.



BOTTOM VIEW

ADJUSTMENTS

To Remove Turntable

The turntable is held by its taper fit on the drive shaft bearing assembly. To remove, hold clutch (49) with one hand and turn turntable with the other. When replacing turntable, be certain that the idler wheel (24) is inside the rim before the turntable is seated.

Set-Down Point

The pickup arm set-down point may be adjusted by means of the set-down adjustment screw (46). Turning this screw clockwise moves the point closer to the record spindle. On early models, this spring-loaded adjustment screw was not incorporated; instead, the pickup arm control lever was held in adjustment by a locking screw. When loosened, this allowed the position of the pickup arm control lever to be changed in relation to the pickup arm.

Pickup Arm Height Adjustment

An adjustable lift pin (9) is provided to permit proper pickup arm lift. At its maximum rise, the pickup arm should clear the bottom of the unplayed stack by approximately the thickness of a standard record. If the lift is greater, the pickup may strike the upper record, or if the lift is not great enough, the needle will not clear the last record of a full stack.

The lift pin is adjusted by loosening its locknut and screwing the small threaded tip in to shorten the lift, or out to increase the lift.

Cycling Switch Adjustment

The cycling switch (70) is in correct adjustment when its contacts are spaced approximately .02 inch apart, with the pickup arm in its outward position, so that the pawl trip lever (52) does not touch the cycling switch lever (39).

This spacing may be adjusted by loosening the screws which fasten the assembly to the main base plate.

Position Trip Adjustment

A position trip is provided to insure starting of the change cycle in instances where the record does not have an eccentric groove. Adjustment of the position trip adjustment screw (47) changes this trip point. Turning the screw clockwise will cause the mechanism to trip earlier. Backing the screw out will delay the tripping.

Normal adjustment is obtained with the tripping occurring when the needle is 1¾" from the center of the spindle.

Sprocket Drive Chain Adjustment

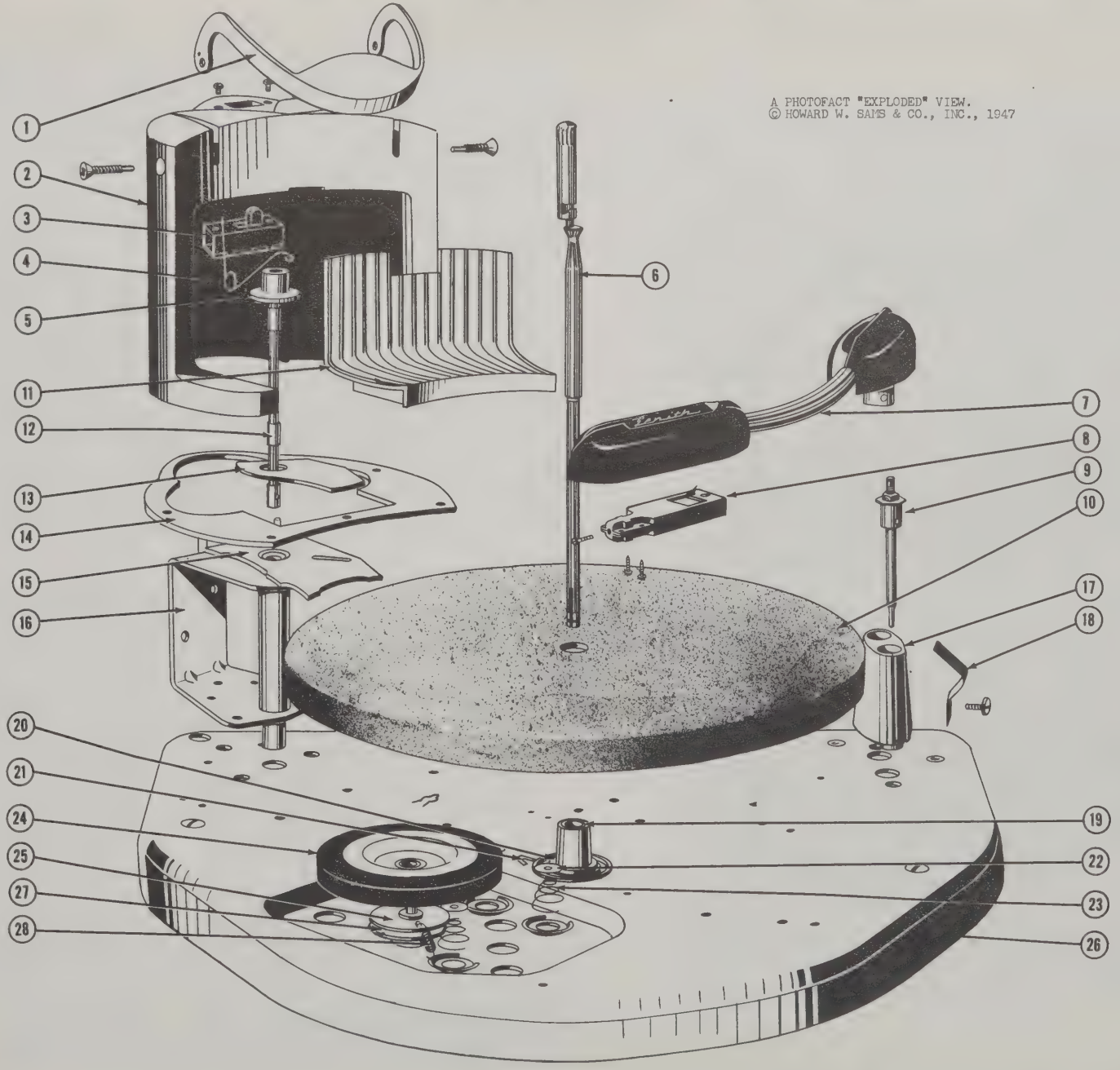
The tension of the drive chain may be adjusted by means of the adjustable idler sprocket (59).

Chain Removal and Synchronization

In the event that it is necessary to remove the chain, the timing sprocket and the selector sprocket must be synchronized when the chain is replaced.

The selector sprocket (61) is stamped with an arrow which is to be lined up with a similar arrow on the base plate when the tip of the clutch release lever (60) is in its untripped position in the rectangular hole in the timing sprocket (36).

The chain is removed by opening a link and should be replaced with the open side out.


A PHOTOFACT "EXPLODED" VIEW.
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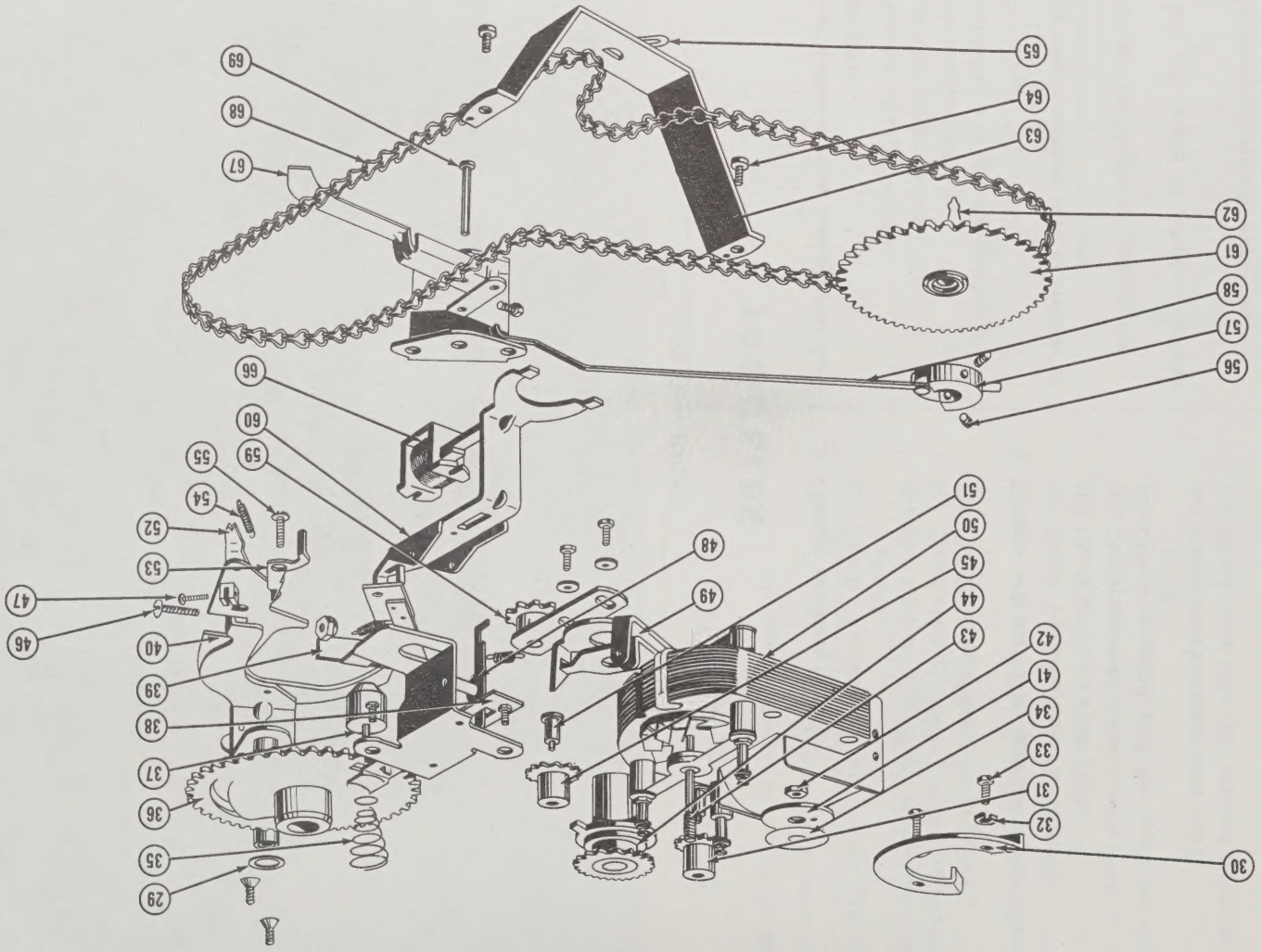
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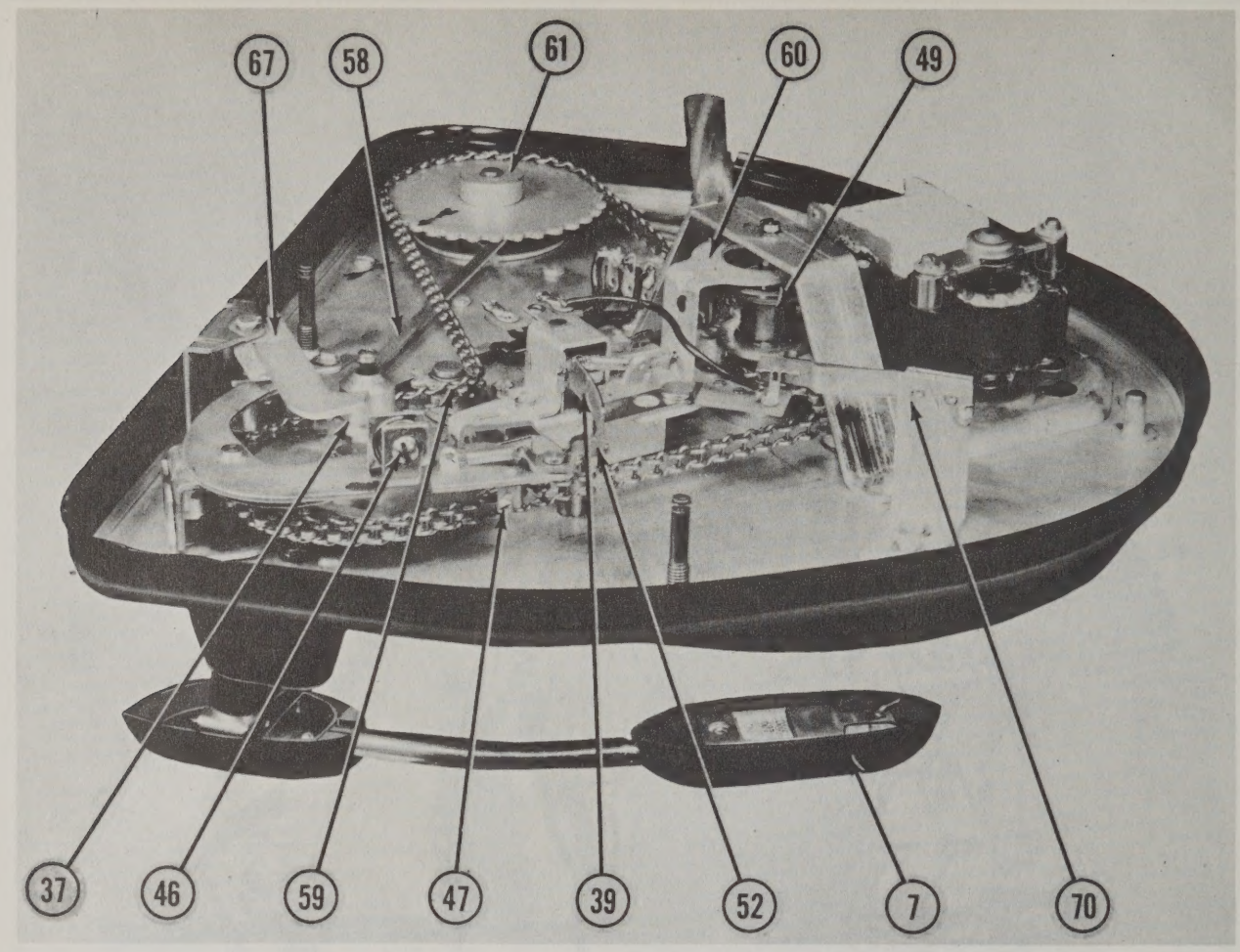


SIDE VIEW (RIGHT)

TROUBLES

1. ***"Record Change" button on radio control panel does not start change cycle:***
   - (a) Check "Record Change" switch.
   - (b) Check solenoid cutout switch (71).
   - (c) Check solenoid coil circuit.
   - (d) Check solenoid energizing voltage from motor.

2. ***Needle fails to clear maximum load of records on turntable:***
   - (a) Check pickup arm lift pin (9) adjustment.

3. ***Pickup arm falls off record or set-down position varies:***
   - (a) Check set-down adjustment screw (46).
   - (b) Check pickup arm mounting screws for looseness.
   - (c) Check plastic pickup arm housing for cracks or breaks.
   - (d) Check changer to see that it is level.

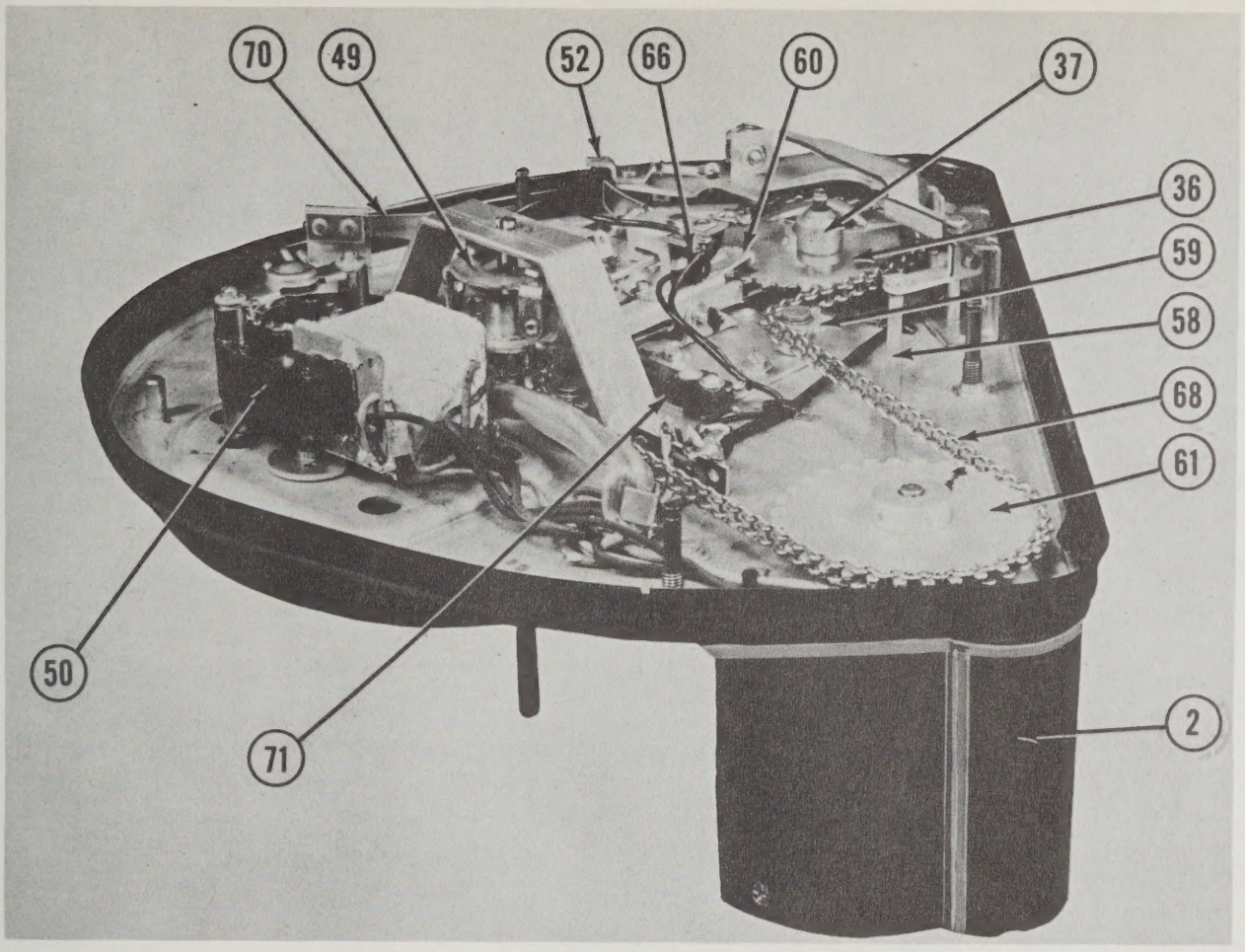
4. ***Changer cycles with switch set at manual position:***
   - (a) Check 3-position slide switch (3).

5. ***Changer continues to cycle:***
   - (a) Check "Record Change" switch (on radio panel).
   - (b) Check for sticking clutch release mechanism.
   - (c) Check cycling switch (70) for adjustment.
   - (d) Check solenoid for short to ground.

6. ***Changer will not cycle upon completion of record:***
   - (a) Check 3-position slide switch (3).
   - (b) Check cycling switch (71).
   - (c) Check solenoid cutout switch (70).
   - (d) Check solenoid coil for open or shorted turns.
   - (e) Check clutch release lever (60).
   - (f) Check drive chain for extreme tightness.

7. ***Squeaks when changer is in cycle:***
   - (a) Check lubrication of timing sprocket (36) surfaces.

8. ***Squeaks during playing of record:***
   - (a) Check friction between record and spindle. A thin coating of wax on spindle will remedy.



SIDE VIEW (LEFT)

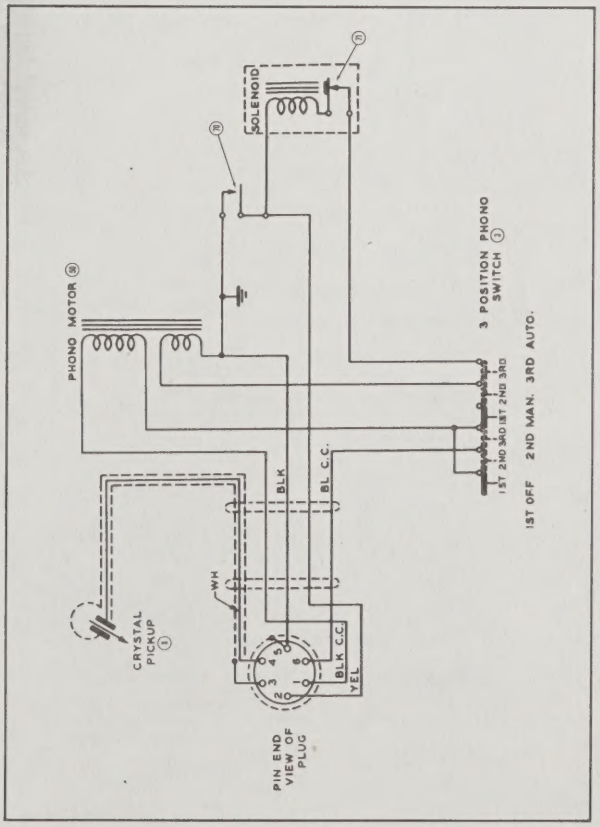
LUBRICATION

Use light machine oil on the following points:

1. Idler wheel (24) bearing.
2. Upper and lower motor (50) bearings (saturate oil wicks).
3. Record spindle guide bearing (19).
4. Lower drive shaft bearing (44).
5. Drive shaft thrust bearing (20).

Use Lubriplate on the following points:

1. Teeth of all sprockets.
2. Lower part of clutch (49).
3. Both surfaces of timing sprocket (36).
4. Upper surface of record size lever (67).



PARTS LIST

Ref. No.	Part No.	DESCRIPTION
1	S-11444	Record pressure arm assembly
2	43-92	Record ejector housing (black polystyrene)
3	85-371	3-position slide switch
4	40-448	Pressure arm spring
5	128-20	Record ejector cam
6	S-11103	Record spindle assembly
7	S-11102	Pickup arm assembly
8	142-62	Crystal pickup
9	S-11100	Pickup arm lift pin assembly
10	S-11443	Turntable
11	24-334	Record ejector housing cover (black polystyrene)
12	76-409	Record ejector cam shaft
13	S-11105	Record ejector plate and pin assembly
14	57-1068	Record ejector housing plate
15	S-11106	Record support plate—shaft and pin assembly
16	S-11107	Record support and ejector bracket assembly
17	43-88	Pickup arm support housing
18		Pickup arm lift pin return spring
19		Record spindle guide bearing
20		Drive shaft thrust bearing
21		Motor mounting clip
22		Motor mounting washer
23		Motor mounting spring
24	S-11118	Idler wheel assembly
25	S-11657	Idler stud and washer assembly
26	S-11608	Base plate
27	93-679	Idler wheel stud felt washer
28	80-368	Idler wheel tension spring
29		Pickup arm pivot shaft washer
30		Selector cam stop plate
31		Fixed idler sprocket
32		Stop plate locknut
33		Stop plate screw
34	93-677 93-678	Idler wheel stud fishpaper washer (large) Idler wheel stud fishpaper washer (small)
35	80-472	Trip lever plate actuating spring
36	S-10730	Timing sprocket
37		Locating pin and bushing
38		Trip lever plate
39		Cycling switch trip lever
40	S-10753	Tone arm pivot shaft and bracket assembly
41	93-673	Idler wheel stud washer—threaded
42	54-66	Idler wheel stud nut
43	80-453 80-452	Spring bushing for 60-cycle operation Spring bushing for 50-cycle operation
44		Sprocket and drive shaft bearing assembly
45		Fixed idler sprocket
46		Set-down point adjustment screw
47		Position trip adjustment screw
48	80-317	Clutch trigger
49		Clutch assembly
50	141-92	AC motor
51		Idler stud
52		Pawl trip lever
53	117-106	Position trip lever
54	S-10753	Pawl spring
55	112-578	Position trip lever pivot screw
56		Set screw
57	S-1110	Selector cam
58		Selector cam link
59		Adjustable idler sprocket assembly
60		Clutch release lever
61	S-11109	Selector sprocket and bushing assembly
62	93-617	Sprocket shaft retaining washer
63	12-1065	Record spindle support bracket
64		Bracket screw
65	188-27	Record spindle retaining washer
66		Solenoid
67		Record size lever
68	214-1	Sprocket drive chain
69		Record size lever pivot
70		Cycling switch assembly
71		Solenoid cutout switch